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MUSICAL EDUCATION

AND

VOCAL CULTURE

FOR VOCALISTS AND TEACHERS OF SINGING

BY

ALBERT B. BACH

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"THE ART BALLAD: LOEWE AND SCHUBERT"
ETC.

FIFTH EDITION

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TO

MY ESTEEMED FRIEND

W. B. RICHMOND, R.A.

PROFESSOR OF FINE ARTS IN THE UNIVERSITY OF OXFORD, ETC.

I Dedicate this Book,

IN MEMORY OF MUSICAL EVENINGS

IN EDINBURGH.

JUILLIARD SCHOOL OF MUSIC
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PREFACE TO THE SECOND EDITION.

My object in publishing these Lectures is to contribute, to the best of my power, towards the promotion of Singing as an Art.

I have endeavoured to record, in the simplest form, my artistic experience during a number of years as a concert and opera singer in Italy and Germany, as well as whatever personal intercourse with thinking artists, and the careful and extensive study of the best works on the subject, could suggest.

While some of my readers will no doubt be already acquainted with much of what is offered in these pages, I believe there will be many to whom much will be entirely new ; and even to the former, who may have read it before, and perhaps in a better form, I would suggest that the lesson conveyed has not always been taken to heart and acted upon.

If, therefore, I should have repeated here what has been said by others, my readers may pardon me for once more putting them in mind of it, for I believe that what is true and profitable in matters of art cannot be repeated too often. Properly speaking, there is nothing new to be said respecting the art of singing; yet I should deem myself fortunate if I could impart to my readers everything of real importance that has been handed down to us from the old Italian school.

ALBERT B. BACH.

PREFACE TO THE THIRD EDITION.

THE favourable reception which my Lectures have met with has induced my publishers to call upon me for a third enlarged edition. It is with great pleasure that I respond to this call, laying before the public three additional lectures. These are:—"Portamento di voce Legato, Shakes, Recitativo"; "The Influence of Climate and other External Conditions on Man and the Human Voice;" "Care of the Voice; or, the Singer's Daily Life."

Nor have I failed to revise the first four Lectures, and considerably to amplify them. I am aware that much might still be done to improve them, and there is many a thing I should like to have said in addition; yet I have at least endeavoured to present, in an instructive and entertaining manner, the most important points which have come under my notice as an artist and teacher, and which I have most at heart; and I fondly hope that by my observations I have been of some service to lovers of the art. To teach is to learn; and as a teacher I have found my attention specifically directed to many a point perhaps scarcely fully appreciated by me as a professional vocalist. Still my remarks express that which I myself believe, not that which must be believed by others. I hope my readers will think about and will put to the test what I have said, and will only adopt it in so far as they may have become convinced of its correctness.

In leaving the title of the first edition unaltered, I have adhered to my conviction that all instruction in music ought,

if possible, to begin with the teaching of singing, in order to develop from the first a correct ear, and to render it sensitive to rhythm and melody. I explained, however, in the preface to the second edition, that my object in publishing these Lectures was to contribute toward the promotion of singing as an art. My contributions, though offered in the shape of detached lectures, may be held to form in their present order a consistent whole. They present to the reader those principles of the old Italian school, according to which the greatest artists of the eighteenth century were trained, and by which, not only in our days, but also in all future time, singers must be guided if they wish ever to do anything genuine in the formation of tone.

I have endeavoured as far as practicable to combine the results of progressing physiology, as also the most important features of the vowel-theory of Helmholtz, with the maxims handed down to us from the period of the highest development of Italian art.

In treating of the equalisation of voice, I have briefly adverted in particular to one fact demonstrated by Helmholtz —viz., the great influence which the form of the cavity of the mouth, considered as a whole, has on the resonance of the tone formed in the throat, and the importance of the coincidence of the note peculiar to the cavity of the mouth with the one formed in the larynx. The old Italian singers had to find out the correct position of the mouth in an empirical way; and even to-day singers—their knowledge of the vowel-theory notwithstanding—have to find out the correct position of the mouth by dint of repeated experiments. If the note be easy to start, and if the tone be noble, full, and pure, then the singer has hit upon the correct position of the mouth and the proper vowel *timbre*. The only correct method of singing, accordingly, is the one that addresses itself to our sense of tone; for the vocal organs form a mechanism which, if a cultivated ear acts the part of the engineer, works with greater precision than the most delicate mechanical contrivance of human construction. The intelligent vocalist of to-day certainly will know

the reason why a note is easily started and rich in tone, and will therefore always endeavour to engage in its formation the resonance of the cavity of the mouth. Thus modern science has merely established theoretically what the old Italian school sought and found in an empirical way. The principles, however, that were long ago carried into practice in Italy, without knowledge of their scientific foundation, express the essential conditions of singing for all men to whatever nation they may belong. There is no new art of singing. The art of forming a noble tone, free from all adventitious sounds, we have learned from the Italians. There is no new *Portamento* or *Legato*, no new *Messa di voce*, no new shake. The Italians have taught us also most of that which in our day we find in print on breathing in accordance with the rules of art: had they been ignorant of this, a Sassaroli could not have executed a cadenza of fifty seconds in one breath. The singers of the old Italian school were no Black-Artists. They were not associated with witches or demons, and did not carry a store of breath in the sleeves of their coats: like ourselves, they were restricted to the use of their lungs and their diaphragms.

The discovery of five registers of the human voice is an achievement of recent times against which I must enter a most energetic protest. Even physiologists of note have spoken of registers like whirring-bass, straw-bass, throat-bass, &c. These, at any rate, are not to be recommended; and I believe that the very name of such registers speaks against their use. The artist will endeavour to form none but noble tones, and may leave the whirring and the straw basses to ventriloquists and circus-clowns.

Where in my Lectures a subject has been repeatedly adverted to, this has been done only in consideration of the significance and importance of that subject, and in order to give due weight to the reflections arising from it: yet I have always been aiming at a desirable brevity and conciseness. Thus I could hardly remind my readers often enough of the necessity of saving their voices, and of breathing according to the

rules of art; and this because I know from experience that most voices lose their softness and volume of sound through over-exertion, and false, unnatural breathing.

In my lecture on the "Influence of Climate on the Human Voice," I do not lay claim to an exhaustive treatment of the subject. My intention has chiefly been to induce men of science to devote more attention to, and write more largely on, this interesting subject. The few remarks I have offered are observations made by me in places situated at considerable distances from one another.

In conclusion, I may add that my book is not intended to be adapted for singers and for teachers of singing alone, but for every intelligent lover of music; and since it is a characteristic of our time that vocal music is coming to be considered a part of general education, and as every one desires to be reckoned an educated person, I may be allowed to believe that this book is a book for every one; and though it is certainly not possible for any mere book to make all its readers artistic singers, yet if these pages have the effect of diminishing, at least in some degree, the number of ear-piercing vocalists,—of whom among so many who sing there can never be any lack,—then I shall feel that all my labour has been richly rewarded. *Adesso addio di cuore!*

ALBERT B. BACH.

PREFACE TO THE FOURTH EDITION.

No more agreeable Christmas gift could have come my way than the announcement made to me by my publishers, that the public had already exhausted the third, and were now awaiting a fourth, edition of this book. I have issued the following pages substantially without alteration, and hope that this reprint will add to the number of those who have kindly received my work.

I have not considered it advisable to render the work more elaborate by the insertion of anatomical diagrams. Diagrams of this kind would render the book more costly, and could scarcely contribute to practical utility. No good singer, I am convinced, ever owed his eminence to the study of anatomical diagrams. He must have become acquainted with the leading principles of his art; and more especially there must have been both on the part of his teacher and of himself a careful study of the peculiarities of his own individual voice,—peculiarities which, when observed, are found to characterise different persons as distinctly as their more obvious peculiarities of face and feature, and which therefore render diagrams accurately drawn for one individual inapplicable to another.

I have, on the other hand, taken steps towards providing this volume with a practical supplement, which I hope will be published simultaneously with it, in the shape of a selection of "Daily Exercises" for both male and female voices, adapted from those in current use among my pupils.

I conclude with a hearty greeting to my readers.

ALBERT B. BACH.

PREFACE TO THE FIFTH EDITION.

THAT the observations published in this book may appeal to many musical ears, and afford attraction to the daily increasing singing world, is the earnest wish of the Author.

A. B. B.

EDINBURGH, *May* 1898.

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LECTURE FIRST

ON THE CULTIVATION OF THE VOICE

DELIVERED AT THE

FREEMASONS' HALL, EDINBURGH

APRIL 10, 1880

AND AT THE

ROYAL ACADEMY OF MUSIC, LONDON

JUNE 29, 1880

"The tone ought to be noble, poetical, and animated, and to be produced through inspiration, as only thus can we do justice to the art of singing."

A. B. Bach's *Principles of Singing.*

JUILLIARD SCHOOL OF MUSIC
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ON THE

CULTIVATION OF THE VOICE.

THE acquisition of the art of singing ought to go hand in hand with the other branches of education, for it is a most important aid to culture, and singing has a peculiar power of purifying and elevating the mind. All representations of heavenly bliss refer largely to singing and music; and Rochlitz, the founder of musical criticism, thought that music must be the proper language of heaven as common to all. History shows that music has borne a large and most important part in the external culture, and in the formation of the moral and intellectual character, of nations. The ancient sacred text of the Chinese says: Music was the most ancient wisdom — the science of sciences. It was music that first mightily stirred the souls of men. It struck them with singular power, purified and strengthened them, and gave their entire mind a loftier tone and attitude. In the same way music was with the Greeks the foundation of all higher culture. Their entire ancient wisdom was most intimately connected with music. Hence among their gods Apollo

is represented as a musician, and the leader of the Muses.

The influence which music exercises on the manners of the various peoples, and its power over the minds of men, are recognised by all the philosophers of antiquity. Plato maintains that certain sounds excite mean passions and pride, while others have an opposite effect. In his opinion, a reform in music involves a political revolution. Aristotle teaches that music is conducive to moral excellence, since it moulds the character in the same way that gymnastics develop the body. Plutarch observes: "The first and most beautiful function of music is to offer to the gods the veneration and gratitude of men; the second, to cultivate the young, to purify the souls of men, and to make them tuneful and harmonious." Pythagoras said: "Music purifies the soul." He therefore every evening played and sang to the harp an old Doric hymn of Thaletas, in order to sink into the arms of sleep with a peaceful and harmoniously tuned soul; and did the same in the morning, to begin the new day's work in the same frame of mind.

An old Indian royal law ordered that the king was to go to sleep, and to awaken amidst the sounds of music; and young Montaigne had his father every morning aroused by music in order to keep his mind constantly in a serene and cheerful mood.

All the ancient writers relate wonderful things of the magic power of music. With Apollo's lyre Orpheus tames by his song the beasts of the forest, checks the course of rivers, and makes the trees and rocks dance. By the power of music, too, Amphion builds the walls of Thebes, for to the sound of his

lyre the stones fit into each other. The walls of Jericho fall at the sound of the trumpets of the priests of Israel. In the folk-lore of the Fins the sands of the shore change to diamonds, the haystacks move of themselves into the barns, the waves of the sea are calmed, trees rock in time, and the bears stand still in devotion when Wainomonen (Vinomonen), one of the supreme gods, touches his chords. He is at last enraptured himself, and sheds for tears a flood of pearls. The power ascribed to music of kindling and quenching the passions has given rise to a multitude of legends. When the evil spirit came on Saul, David played on the harp to him. Timotheus put Alexander the Great into a rage by singing a song in the Phrygian mode, and soothed him again by passing over into the Lydian scale. With the Gauls the bards parted the combatants by their song. Thibaut states that the Ambrosian Chant, by its heart-stirring power, caused the entire host of Pagan soldiers suddenly to desist from the pursuit of the Christians, and to become themselves converts to Christianity.

In his "Études Musicales," Berlioz most charmingly describes the effect of the singing of the London charity children at their annual gathering in St Paul's Cathedral. He says: "When J. Ganthaumy's trilinear psalm" (1774) "was sung by all the voices, accompanied by the brass instruments, the kettle-drums, and the organ,—when this hymn of truly ecstatic fervour, so grand in its harmony, so noble and yet so pleading in its expression, was rolling through the dome,—then nature asserted her right to be weak, and I had to avail myself of a music-book to conceal my face, as Agamemnon concealed his in his toga. On leaving the

church I met old Herr Cramer, who, quite forgetful in his rapture of his ready command of French, called out to me: '*Cosa stupenda, stupenda! la gloria dell' Inghilterra.*'" Most marked was the excitement in the great master of song, Duprez. He stammered, wept, and was almost raving. Finally Berlioz exclaimed: "Great nation endowed with the instinct of the great, the spirit of Shakespeare lives in you!"

The language of music is intelligible to all. It is a kind of universal language. The realm of music is that of emotion and feeling, sounding forth from and penetrating to the innermost soul.

Of Palestrina's "Missa Papæ Marcelli," performed under him in Rome in 1565, Pius IV. said that those were the harmonies which John the Evangelist had heard in the heavenly Jerusalem, and which another John—viz., Giovanni Palestrina—had caused to be heard in the earthly Jerusalem. Baini says: "This music eradicates everything impure and evil in the human breast, and fills it with a cloudless ether, light, peace, and bliss." Palestrina himself said that he had only rendered back in this "Missa" what angels had sung to him.

If we could consult our memory as to the earliest days of our earthly existence, every one of us would, according to D'Aubigny, confess that the sweet notes of some benefactress lulling us to sleep were (next to the warming nourishment imbibed at her breast) the source of the first enjoyable sensations prepared for us. Since we were not able, however, to perceive this within ourselves, opportunity was given us to remark it in infants. And what observant mind has not a thousand times noticed the influence of the gentle

voice of a devoted mother upon her darling! Indeed one might say that in the very cradle we receive our first singing lessons; and most certain it is that the mother or nurse who sings to us a well-tuned lullaby does us infinitely more good than many fashionable teachers of singing of the day, who, by their ignorant mismanagement, speedily consign the voices of their pupils to an early tomb.

Most musicians, skilled in some other instrument, consider themselves also fit to handle that most difficult instrument—the human voice, the larynx. A good general musician may convey to musically endowed pupils a certain readiness in singing in time, and even at sight, but he will not form and cultivate their voices.

Frederick Wieck, the father of Madame Schumann, has put the question: "In what do most of our singing teachers, musical though they be, and not without ear, sympathy, and culture, nor without having studied all possible methods of singing, fail?" "It is the forming of the voice, the moulding of the tone, which cannot be learnt from books, but only practically by oral tuition." Most musicians lack a sufficiently intimate knowledge of the voice and of its education, and possess no diagnostic power for the correct classification of voices. Thus voices are ruined by the treatment of otherwise excellent musicians. He who wishes to devote himself to tuition in singing must study hard for several years under the guidance of a true master of the art. He must make extensive investigations and experiments with his own voice, must train his own voice, and watch the treatment of hundreds of other voices till he has attained to full familiarity with the

subject. Only after having thus himself become a singer can he educate others to be singers.

Writings can never supply the place of personal instruction. How is he who has not made a special study of them to convey to the pupil an easy and free intonation and the art of equalising the voice, *portamento, messa di voce,* regulation of breath, &c.? I might name several recognised composers of song who have owned to me that they know nothing about the formation of tone; and one finds in all countries instruction in singing given by musicians who play but one instrument, and have no idea of the formation of voice. As a true "A" (ah) is the foundation of all vowels, a correct formation of tone is the foundation of singing. Peregrino Benelli of the Bernacchi school plainly says: "*Per un cantante necessario un maëstro che sia buon cantante.*" ("For initiation into singing it is necessary to have a master who is a good vocalist himself.") Rossini says: "He who wants to write well for singers must be a singer himself." If one does not know from experience the capabilities of the larynx, one cannot possibly escape the danger of demanding from it, on paper, exertions which it cannot encounter without over-fatigue. He who wants to teach the piano must be a player, as one who would teach painting must be able to paint. He who wants to teach singing must be able to sing. It is well known that Rossini trained the voice of the Countess Orsini, who filled all Florence with rapture. What we have not acquired ourselves we cannot impart. Marx, the celebrated musical theorist, remarks: "As we are, so we work,—the mechanic mechanically, the artist artistically."

As a physician has to study each constitution, the teacher of singing must study each voice, and, so to speak, live into it. The student of medicine has during several years to observe many hundreds of patients before experience enables him to proceed independently; and in the same way the intending teacher of singing must, under the guidance of able professors of the art, make observations on as many different voices as possible, and familiarise himself with their treatment, before he is entitled to the independent cultivation of voices. Guided thus by large experience, he will have at his disposal the proper means for attaining with his pupils to the highest aim—viz., to the developing of an open, tender, sonorous, and well-equalised voice.

The teacher of singing must be a singer himself also, *for this reason*, that he must be able to sing to his pupils the notes, to illustrate to them the difference between a free and a strained, between a bright and clear, and a dull and hazy way of leading the voice, and to convey to them an idea of the different shades of sounds. Besides, the teacher ought to have sufficient knowledge of anatomy to have it in his power to explain to his pupils the conditions under which a tone of fine quality is produced, as also to help them to get rid of faulty guttural, palatal, and nasal sounds.

Tosi and Mancini even recommend that the teacher should imitate with his own voice these faults of intonation, in order to give the pupils a clear idea of the unpleasantness of their own way of uttering the notes; besides, the teacher must know how to animate the pupils, how to conduct their studies always in a friendly spirit; he must not always think of his time

and his purse, but be at his work with heart and soul, in order to be a worthy professor of his art; yet one hears often enough teachers exclaiming, "Why, he is only an amateur! He sings only for *his own pleasure*. He will at any rate never be anything great, therefore one need not be so conscientious." The consequence is, that one feels sometimes prompted to make the rather ungracious remark that such amateurs sing for nobody's pleasure, but to everybody's terror.

A higher view of the mission of the art certainly demands of him who engages in her pursuits, whether he be an amateur or a singer by profession, that he should set before himself the noble aim to minister worthily to her. Very justly Quintilian says: "They who aspire to the highest results will certainly achieve something better than they who from the outset think it impossible to reach the aim, and consequently stop short at the very first low stage."

It is a great mistake to take for the first lessons an inexperienced teacher because, perhaps, he is less expensive; and this is particularly the case with singing, since the voice is but too often ruined for ever by mismanagement, or the pupil falls into bad habits, which require great loss of time and labour to be got rid of.

Quintilian, in his "Guide to Oratory," asks: "Would Philip of Macedonia have chosen Aristotle, the greatest of philosophers, to initiate his son Alexander into the elements of science, or would Aristotle have accepted such an office, had not both Philip and Aristotle believed not only that the very rudiments of knowledge are best treated by the most experienced master, but also that they are of paramount importance for the whole future course?" Thus also are the very first

principles of the art of singing all-important for the aspirant to that art; and for the first formation of tone we ought to take only an experienced master, and one in every respect thoroughly qualified, who alone can lay a safe foundation; for if the foundation be bad, all the rest will turn out a failure. What has once been hardened by abuse is more readily broken than repaired.

Although we possess excellent works on the art of singing, I yet know from experience that the most important things cannot be made sufficiently clear in words, and that sound practical instruction must remain the principal thing. Besides, it is certain that practice has not arisen from science, but, on the contrary, science from practice; just as speech did not arise from language, but language from speech.

A note sung to a pupil is more instructive than the best explanation, and in many respects listening and imitating does most for the learner. I remember Dr Filippi of Milan giving to the thousands of singers congregating in that city the sound piece of advice to go, and, as a real lesson, listen to Signora Adelina Patti, who was just then singing in the Scala Theatre; and, indeed, I would desire nothing more than that you all should hear that great cantatrice. In the meantime allow me to state a few things about what I hold to be one of her great perfections, and indeed the most important point in the art of singing—I mean "breath."

BREATHING.

A good writer can say much in few words, and in the same way a good singer requires little breath in order to sing a great deal.

A striking illustration of the value of correct breathing we find in antiquity, in the case of the orator Demosthenes, who, as is known, had a short breath, and, as Plutarch states in his Biographies, gave 1000 drachmas to the actor Neoptolemus in order to learn to repeat entire periods in one breath.

We see, then, that breathing studies were being made as early as 2000 years ago. On the whole, the knowledge of the ancients of the means by which voice is produced was very considerable. Hippocrates and Aristotle made very thorough observations on voice. The former knew that the windpipe is connected with the great receptacle of air—the lungs—and likewise that the air in passing through the larynx produces tone; and well he knew to distinguish between the larynx and the esophagus. He on some occasion ordered a coloured drink for a thirsty pig, and had its throat cut immediately after, in order to convince his students that the windpipe was colourless, whilst the esophagus was intensely tinged.

Aristotle, again, says that the vowels are produced in the larynx as voice, whilst the consonants are produced by the tongue and lips.

I have already mentioned that the celebrated Greek orator was making breathing studies in order to learn to repeat entire periods in one breath. Still more important are these studies for the student of singing;

for there is nothing on which the freedom, naturalness, and beauty of tone depend in a higher degree than on the correct use of the breath—an energetic control over, and skilful management as well as wise distribution of it.

It is proper to call breath the generator and supporter of tone in speech and song; and since breathing speeds better or worse according to the greater or lesser capaciousness and free play of the chest, speakers as well as singers ought to aim at increasing the dimensions of the thorax by suitable exercises.

The diaphragm is the muscle of partition between the cavity of the chest and the abdomen, and plays a great part in breathing, and we dare say the most important part in singing. Ordinarily, in speaking, we breathe with the upper part of the chest. In singing, however, we must breathe with the lower portions of the lungs also, and retain the air by the diaphragm. Simple as this may appear, it is very difficult for the beginner to do it correctly.

The heart, which, as the centre of the circulation of the blood, is in unintermitting connection with the arteries and veins, is, not less than the lungs and diaphragm, engaged in the act of singing, and one may therefore say that the tone is not produced by a mere volition, but by the very heart's blood.

The action of the heart, like that of all other muscles, stands under the control of the nervous system, and more particularly of its brain centre; and therefore one may appropriately say that every note of genuine song proceeds from our intellectual and psychical nature.

With a view to full control over the breath, the student must, above all, clearly distinguish between

superficial and *deep breathing*, and avoid the former, excepting the occasional use of the natural light breath, which the Italian school terms "*la mezza respirazione*," and which requires no especial study for its acquisition.

Superficial or slight breathing, which is not only useless, but also most injurious to the singer, consists in the elevation of the upper ribs and the breast-bone, and is therefore sometimes called collar-bone breathing. In this way but a small portion of air is taken in, and it is of course drawn down only into the windpipe. The breath remains constantly close to the larynx, and makes the singing strained and breathless, with an ungainly heaving of the chest.

In this way the lower part of the lungs,—which one has to imagine as a pair of bellows requiring to be filled with air to their very base,—is not brought into action at all. The consequence is, that the lower part of the lungs, in which an astonishing quantity of air may be stored, becomes less and less pliant, and ultimately refuses to act at all.

Instead of this injurious mode of breathing, deep breathing is to be most persistently cultivated. To this end the lungs must be allowed to expand most freely in the *lower* part of the chest, the diaphragm being energetically contracted. In consequence of this procedure a far greater amount of air rushes down into the lower lobes of the lungs, which are then resting flat on the diaphragm, than by any gasping for air with the mouth. Let then the pupil diligently practise the art of firmly retaining, by the deeply depressed diaphragm, the breath thus obtained, and allowing as little as possible to escape upward. Let

this healthy way of breathing, which strengthens not only the lungs, but also the organs of digestion, be practised assiduously and extensively, particularly in the morning, even when one is not singing.

As I have mentioned digestion, let me here at once say that the condition of the stomach is of importance in singing, and that with an impaired digestion singing is difficult : it becomes strained, and it is impossible to produce a beautiful and noble tone. It is a common mistake to suppose that the upper parts of the lungs are pre-eminently the reservoir of the air required for the voice. The upper part of the chest is rather brought into requisition by all-provident nature only during great agitation or exhaustion. In order to convince yourself of the extent to which respiration depends on the movements of the diaphragm, and not on those of the upper part of the chest, lie down on your back at full length on an even surface, so that the head lies as low as the body, and now begin to breathe quite slowly ; then you will see that it is not the upper part of the chest, but the parts below the ribs, which, being depressed by the diaphragm, seem to expand like a pair of bellows. Frequent breathing in this position is the best for acquiring deep breathing. These exercises are to be made without singing.

It is a matter of course that calm, deep breathing conveys more air into the air-channels than the ordinary way of breathing, but superficially. Accordingly, by the first method a larger quantity of oxygen is introduced into the organism, we widen our chest, strengthen the lungs, and I know from experience that deep breathing very favourably influences digestion. I

would even go so far as to advise all persons who have to complain of a want of appetite, to sing with suitable intermissions daily for an hour good solfeggios, with slow and deep breathing, and they will soon realise the effects.

Professor Mandl points out that some physicians even have recommended deep breathing as a preventive for consumption.

Dr Steinbrenner was of opinion that the habit of imperfect, superficial breathing was one of the causes of tubercular consumption, and proposed, as Dr Crichton and others had done before him, deep breathing as a prophylactic against consumption. In the same manner has the inhalation of vapours through an apparatus proved very efficacious, to which air was supplied by an aperture of only from three to four millimetres in width.

I am not a physician, and thus cannot examine into the particulars of the above; yet it goes to strengthen my conviction that the lungs are greatly improved by deep breathing, and I would suggest the following with regard to the method of these breathing exercises: They should be made in the open air, and, if possible, in a garden, on account of the larger supply of the beneficial oxygen there obtained. The inspirations must be rather an imbibing, and the expiration a gradual flowing out rather than a puffing out, of the air. The best and simplest way to accustom one's self to deep breathing is to stand upright, and, folding one's hands on the top of the head, to draw in the air as gently and as deep as possible, retaining it well down by the diaphragm for from ten to twenty seconds. I may also recommend the following as being to the

purpose: pass a stout cane across the back through the bend of both the elbows, taking the arms well forward, and in this position breathe gently and deep, by which diaphragmatic breathing is supported to a remarkable degree, whilst it is also conducive to a good carriage.

If there is no cane at hand, it suffices to join the hands behind the back, observing a carefully erect posture, so that the shoulders are drawn well down. Standing or walking thus in a pure air is promotive of health, because of the deep breathing.

The natural and free development of tone depends, above all, on the difficult art of correct inspiration and expiration. Breath must be drawn completely at ease, without fits and starts, and quite noiselessly, until even the lowest parts of the lungs are completely filled with air. Many persons spoil their very first note by singing it over-hastily, even before they are done drawing a breath; whilst the formation of the tone must begin only with the expiration, which likewise must be executed with the greatest possible ease and gentleness. It does not depend on the great volume of the ejected air. On the contrary, too much breath makes the note uncertain and unsteady. Flat singing is generally due to this mistake. The vocal chords are weakened by such forcible expulsion of the breath, the tone becomes hard, and the throat is injured. The singer must rather carefully husband the air deeply drawn into the lungs, and must give it out only gradually. "*Filar il tuono*" (spin the tone), says the old Italian school, to indicate how one must avoid forcing it out; and in the same way, "*La voce ha buona pasta*" (the voice is of a fine soft paste), which

has become quite a household word with musicians. To convince yourself in the simplest way of the correctness of my view, try to whistle. If we force too much air against the edges of our lips, or drive a violent breath on them, we produce either no tone at all, or only a very unpleasant one. If, on the other hand, very little air, and this but gently, touch our lips, we shall often hear notes such as only singing-birds can produce.

The higher the notes are which we produce, the more the glottis contracts; the lower they are, the more it opens. Any one may see this with the aid of the laryngoscope. For physiological purposes, Dr Czermack's speculum is particularly well adapted. We observe the same thing in whistling. The more firmly we close the lips, and the narrower the aperture through which the air escapes, the higher is the note; the wider, the lower is the note. The beginner has always great difficulty in finding the true measure. I take this opportunity of speaking a few words about the position of the mouth.

Natural as it would seem to be to everybody, that in singing one should open the mouth, yet singers who know how to do so properly are rare. Many sing with the mouth nearly closed; others open it too wide. The old Italian school says the singer should open the mouth so far as to be able to place his forefinger between the teeth. The mouth is to be opened as for a gentle smile, so that it may form an oval in a horizontal position. Then the tone becomes beautifully soft and sonorous, and particularly suitable for the expression of feeling. If the interior of the mouth is more arched, the vowel "A" (ah) becomes more obscure, shading

towards the "O." Thus a grave and gloomy character is imparted to the tone, and this position of the mouth may be employed especially in the representation of wild passion.

The teacher must from the outset ascertain with the greatest care the position of the mouth that is easiest and most suitable for each pupil, and attend to its being constantly maintained. Even very small variations in the dimensions of the mouth strikingly alter the formation of the tone.

The Bernacchi school of Bologna says, opening the lips more or less even by a tenth of an inch is of marked influence on the tone. With some singers whose organisation permits only a moderate separation of the jaws in the production of the vowel "E" (eigh), a scarcely perceptible elevation of the point of the tongue prevents the free passage of the tone on this vowel.

Each face, mouth, and tongue being formed differently, special trials have to be made with every beginner, in order that it may be established in what way he can form the tone with the greatest ease and beauty. We have mentioned that the old masters knew the secret how to make every one sing according to the particular qualities of his voice. Unfortunately this can be said of but few teachers of our times.

If now the beginner has, by trials before the looking-glass, found out the position of his mouth proper for the production of the vowel "A" (ah), he cannot do better than insert between his teeth a small bit of cork of the height he has ascertained by the looking-glass to be requisite for this position, and at first sing his exercises with the cork between his teeth. These

exercises must be continued until the beginner is able to maintain that proper position of the mouth without the cork. The cork is not to be more than half an inch broad, lest the tone should be unduly obstructed in passing out.

When one has done with vocalisation studies, solfeggios may be commenced; and here it is to be observed that special attention is to be paid to the distinct enunciation of the consonants. If the singer neglects these, his performance will always be unintelligible and of little effect. Both in the concert-hall and on the stage the singer must bestow as great care on the consonants as on the beauty of tone itself.

In Sanscrit the consonants are called *vyongana*—*i.e.*, plain revelation. The vowels are called *svara*—*i.e.*, sounds; and there is a proverb—"Be sparing with the vowels, says the tongue, and you will speak beautifully, honour the consonants, and you will speak distinctly." The consonants must always be uttered with exactness but quickly, so that the continuity of the flowing tone may suffer as little interruption as possible. The attention paid to distinctness of pronunciation must never be carried so far as to prejudice the note sung.

Persons hard of hearing do not understand us any better if we shout at them, and in speaking to them it is generally sufficient to mark the consonants more sharply than in ordinary speech. Therefore I would advise singers who do not pronounce the consonants distinctly enough, to try to practise conversation with people hard of hearing,—of course without shouting at them.

Before the pupil sings the first note, the mouth

must be already opened in the position above described; for if one opens the mouth only when starting the note, there is always heard a second uncertain sound, which is exceedingly disturbing to a sensitive ear, and deprives the singing of its beauty.

Every note must ring out all by itself independently and pure, without that too common disagreeable fetching about. Solfeggios, or songs, should not be attempted before one is perfectly familiar with the notes first in one's mind, and then, as it were, physically. The fetching about for the right note always hurts the voice.

Let the piano be scrupulously true in tune.

Gretry ("Essais sur la Musique") relates that the famous *cantatore* Giziello always sent his tuner beforehand to the houses where he was to sing, not only for fear that the piano might be too high in pitch, but also to be certain of an extremely correct tuning.

One seldom meets with a really equalised voice of uniformly powerful tone. The singer may, however, succeed in obtaining it, by endeavouring with slow movements to strengthen the weaker and deficient notes, as well as moderating somewhat the better and powerful notes. If practising is carried on in this intelligent way, any voice must, after a certain time, achieve the desirable equalness. Besides, one must extend the limits of the different registers in such a manner that the limit of the one class of voice should be advanced into the domain of the one bordering on it. These studies are of the greatest importance and advantage; for if the singer is able to shift on certain notes from the natural voice to the falsetto, he can produce extraordinary effects in his performance.

Every day studies in vocalisation should be practised in the one or the other class of voice.

The singer has to pay constant attention to his pronunciation, so that it may be throughout audible, most intelligible, natural, and agreeable. "Words," says Nauenburg, "are actually the body which is transformed and transfigured into an animated veil by ethereal sound. The word and the tone stand to each other in a relation of the most intimate reciprocity. The word must interpret the note (sound), but the note is to give warmth and soul to the word. In thus giving intellectuality to sound and spirituality to the word, the singer enjoys his noblest triumph as a living vehicle of art!"

After having completed the studies necessary for the formation of the voice, a beginning may be made with the singing of songs and airs. Alas! but few pupils are inclined to follow this rule. Most of them, after a few lessons, think the singing of scales on the vowel "A" (ah) rather *slow*, and solfeggios uninteresting.

Beginners who desire to sing at once arias by Mozart and Beethoven, appear to me like young painters wishing to commence their studies with copying Raphael's Madonna. Hence I repeat, scales on "A" (ah), then solfeggios, and last of all songs and arias.

A very good means of learning to inhale calmly and easily consists also in closing the mouth at the moment when one wishes or is obliged to draw breath —that is, in breathing through the nose. By this means deep breathing is remarkably aided, the air being more concentrated, and exercising a greater pressure, while it also descends deeper. Especially at longer rests the singer ought to make use of this kind of

breathing, as it prevents the throat and vocal chords from getting soon dry. It is known that, on string instruments, beautiful notes can be produced only when the strings are perfectly dry: but the opposite is the case with the human instrument, the larynx; for if the vocal chords are dry, the tone will lack all softness and volume, and thus all beauty. The inner surface of the larynx is therefore covered with a mucous membrane, which is continued upwards into that of the throat, and downwards into that of the windpipe. Its office is to keep these parts moist and pliant.

We repeat, the first condition of pure and good singing is constant restraining of the breath.

Until one has learned to restrain the breath as energetically as possible, one possesses no control over it, and consequently none over the voice.

This restraining of the lungs and breath must become so absolute a habit that one cannot even think of singing without the process being constantly and involuntarily gone through. These breathing studies must be made constantly, and with the greatest attention. Let no one be deterred by their difficulty. Firmness of will can do everything. "The mind wills, the body must obey."

Now that science has disclosed the hidden processes of the formation of voice within the larynx, we are enabled to form a tolerably clear notion of the action of the mechanism of the larynx. Furnished with this knowledge, our mind can, by means of our imagination, transport itself even before the formation of a tone into the interior parts of the organism where we have to fancy those functions going on.

Thus, most vividly representing to ourselves at the right moment the nature of these motions which we feel to be associated with the proper position of the glottis for resonant expiration, as well as for the production of high and low notes, and bringing the force of our will to bear upon them, we acquire a control over that organism which is in most intimate *rapport* with our consciousness.

By means of the laryngoscope it has now been made evident that the limits set to each voice by nature may not be overstepped with impunity; for if one forces the voice to a pitch beyond its natural height, the vocal chords become red and inflamed. By aiming at unnaturally low notes, the vocal chords are relaxed, and lose their healthy light colour.

By application and self-observation we can acquire the art of diaphragmatic breathing with complete exclusion of all simultaneous movements of the chest. When the singer has become an expert in diaphragmatic breathing, his voice must gain greatly in volume, sonorousness, flexibility, and compass; and experience shows that singers endowed by nature only with weak and limited vocal powers, improve greatly in compass and quality of voice, as the author can testify from his own experience. Excellent advice for the promotion and full development of breathing, for the correction of narrow-chestedness, and for the strengthening of the voice in singers and public speakers, is given by the work of Dr Schreber.

Exercises in diaphragmatic breathing may also be made in the sitting position, with the hands folded behind the back of the chair, as high up as possible.

Even when singing *fortissimo* one must avoid throw-

ing the full breath on the windpipe, but rather regulate and check it by holding it in; for it is a delusion to believe that the strongest breath produces the loudest sound. Lavish expenditure or forcing of the breath on the windpipe will by no means achieve a real sonorous, rich *forte*. This must rather be produced by setting a comparatively small volume of breath into the greatest possible vibration and resonance within the throat and mouth.

A rich volume of voice is produced only by a perfectly free flow of the air through the larynx, and is produced especially when the air strikes the hard roof of the mouth above the teeth, with the tongue lying perfectly still. We expressly say "with the tongue lying perfectly still and flat;" and we must, in order to show the importance of this position of the tongue, beg leave to introduce some physiological facts. Attached to the root of the tongue we find the "lid of the windpipe"—the epiglottis—the office of which is to cover, during eating and drinking, the aperture of the windpipe or the glottis, to prevent particles of food and drink from getting down "the wrong way." Now the root of the tongue, with the epiglottis, most materially affects the voice. The laryngoscope shows that it occupies different positions with notes of different heights—viz., that it sinks with low and rises with high notes.

Longet maintained that the excision of the epiglottis of dogs, at least, did not affect the pitch and character of their voice; and this opinion was supported by the celebrated Berlin anatomist, Professor Johannes Müller, from similar experiments with the human larynx.

Recently, however, it has been proved by the physiologist, Dr Walton, that the epiglottis, by its varying position, most materially alters the *timbre* of the voice. If the epiglottis, by retraction of the tongue, is firmly pressed down on the vocal chords, so that these cannot be seen with the laryngoscope, it muffles the sound and makes the notes thick and dull. Besides, the tone loses resonance as the tongue is raised. On the other hand, with a flat position of the tongue, the epiglottis is lifted up, and then the voice sounds clear and full, pure and brilliant.

We must imagine the windpipe as a tube suspended by ligaments, which produces sonorous sounds only when it swings freely, as it can bear but a moderate current of air. I therefore cannot too much recommend an energetic restraining of the air by the diaphragm, so that but little air may stream on the vocal chords.

Swelling exercises (*messa di voce*) by degrees make the breath longer. Care must, however, be taken not to make these in a high register. I can recommend them only in the middle register, and only for a few minutes daily.

The tone can be infinitely refined by endeavouring to draw back the air as if one were going to drink it. My old master always said, "*Bisogna bére la voce*," which I had difficulty in understanding until I found out that the drinking referred only to the breath.

One of my colleagues, who is now a highly popular singer, Mdlle. Vanzandt, Paris, Opera Comique, asked me after our first lessons what I thought of the method of our *maëstro*. I made use of the words of Socrates: "What I have understood is excellent; hence I infer

that also what I have not understood is of equal excellency."

If we wish to convince ourselves whether we can control and restrain our breath, or rather the air requisite for the production of tone, we may hold a burning taper or a cold mirror before the mouth whilst singing, best of all, solfeggios extending one octave and a half. If the flame moves much, or if the glass is dimmed with our breath, then we are not yet master of our breath. These studies are therefore to be continued until we find the flame remaining quiet and the glass not dimmed by the breath whilst we are singing.

In order to know that one sings with a natural precision and breathes correctly, one must see that a pressure in the larynx is avoided, that one does not get easily tired, that the brow is not wrinkled, nor the throat cleared.

We have all small collections of mucous in the little folds and puckers of the throat. With a correct management of the voice this mucous will remain undisturbed in these folds, or only so little of it will escape as not to inconvenience us; but with a false and unnatural management of the voice the mucous membrane becomes rebellious, and clearing throat only makes matters worse. By such signs of distress we at once recognise the unschooled singer. If the "hemming and hawing" becomes a habit, it can be got rid of only with much trouble and after a long time. It makes the voice harsh, and soon fatigues the vocal chords; besides, it sadly disturbs the performance by constant interruptions.

Ladies would have no difficulty in acquiring dia-

phragmatic breathing but for the abuse of lacing, by which the proper functions of the lungs are interfered with.

I had a fair opportunity in Vienna of obtaining impartial evidence on that point, because the evidence was that of an individual of the stronger sex. At the annual *fête* which the academicians and *artistes* arrange in the "Musikverein," and where everybody appears in artistically true costume, the gentleman deceived all by his "ladylike appearance;" for, like many young officers in the Russian army, he sported an exceedingly graceful waist by habitually squeezing himself into stays. Without a beard, and with a rather delicate complexion, he would personate to perfection some duchess or Eastern beauty. Here was a chance for an ardent student of the physiology of deep breathing, and my fair partner soon enough confessed to me that his respirations were very shallow indeed. The injurious custom is, in fact, the only obstacle to deep breathing.

Valentin, in his 'Grundriss der Physiologie,' calls attention to the observations of Beau and Maissiat regarding the mode of deep diaphragmatic breathing in infants and younger children. In the same manner Dr Carl Bock, Professor of Anatomy in Leipzig, Dr Mandl of Paris, *Professeur en Hygiène de la voix*, in his work on the health of the voice, and Dr C. Neumann of Leipzig, in 'Die Athmungskunst des Menschen,' distinctly point out the high importance of the unimpeded action of the diaphragm, and the perfect equality of the sexes with regard to deep breathing.

The world-famed Madame Schröder Devrient sang the most difficult passages without in the least moving

the upper part of the chest, and she owed this entirely to practice.

As a proof that the method of deep breathing is the only correct one, O. Guttman suggests an experiment with any ordinary watering-hose filled with water. The water may here be expelled in two ways—either by a pressure on the yielding sides, or, as with any fire-engine, by a steady pressure by means of a piston from below. In the former case—that is, when the pressure is on the walls—the jet produced will become trembling, irregular, and more or less intermittent; whilst in the latter case—viz., when the force is applied from below—the jet will be steady, regular, and uninterrupted, as may be seen with any well-worked fire-engine.

Something quite similar is the case with our lungs—the back, chest, and sides resembling the walls of the hose, and the diaphragm, with the adjacent muscles, supplying the pressure from below.

The old Italian school must certainly have cultivated deep breathing, as these singers got the length of being able to sing for from thirty to forty seconds in a breath.

Rousseau relates of Baldasar Ferri of Perugio (1680), for whose possession the courts of Europe were fighting, that he could sing a chain of shakes of two octaves chromatically up and down, and with every note absolutely true, in one breath. Farinelli, one of Porpora's pupils, sang three octaves (from the unstroked *a* to the three-stroked *d*). In a theatre at Rome he had made a match with a trumpet-player who had to accompany his arias. They both got together a sustained note and a double shake in the

third, which they continued until both seemed exhausted. The trumpet-player actually was so, when Farinelli, with a sneer, suddenly broke out in the same breath with renewed vigour, and not only sustained the note in a *crescendo*, but also with an additional shake. This Farinelli, I may add, was a good deal luckier than is usual with artists. He rose to high estate in Spain. He became Grandee of Spain, and Intendant-General of all the operas, and even exercised a great influence on political affairs.

When the Empress Maria Theresa was displeased with having to write pleasant letters to Madame de Pompadour, she consoled herself with having had to do the same to Farinelli.

The greatest charm in song consists in *messa di voce.* Mancini, in his excellent work 'Riflessioni pratiche sul canto figurato,' says: "*Un vero ed attimo artista se ne serve in qualunque nota di valore la messa di voce*" (a true artist avails himself of the *messa di voce* in every note), which I, however, think an exaggeration.

In the theory of singing, *messa di voce* means the accomplishment of starting a tone in the softest piano, giving it more and more power up to the strongest *fortissimo*, and then in the same breath letting it gradually become softer and softer until it dies away in a mere whisper. Sieber says it is not without reason that for centuries back so great a value has been attached by all distinguished singing masters and singing schools to this accomplishment, seeing that the use of *messa di voce* lends to song its highest charm. Here, again, the most exact apportioning of and control over the breath is the first requisite for the execution of an artistic *messa di voce.* D'Aubigny remarks: "The

beginning and the end of the note must resemble the wafting of the evening breeze: one perceives its beginning without being able to define it; one is still listening to its termination when the note has already died away."

The singer must, in *messa di voce*, keep his mouth nearly equally open, and must never force the tone. The voice may, as it were, be coaxed or fondled into much; nothing must be extorted from it. This must ever be the first and most important principle in the formation of the voice, and should be the motto of all teachers of singing. Even with moderate powers a perfect *messa di voce* may be executed if the note is well started and very carefully brought forward in the mouth, by which it gains, in a remarkable degree, in penetration. The old Italian school says: "*Bisogna cantara sul fior delle labra*," which means, "form the tone as it were on the very edge of the lips." In *messa di voce* singing the high notes requires the mouth to be more fully opened at the *forte*, the tone otherwise sounding compressed and squeezed owing to the increased force of the breath. On the other hand, the lessened current of air in the *piano*, in order not to be too much dispersed, and thus to fade away without resonance, demands a more closed position of the mouth.

The old Italian school seems to have been sparing in the use of *messa di voce*, and to have limited it to the *chiaro*, or clear vowels. Tosi, at any rate, says (*op. cit.*, p. 17): "*Una bella messa di voce in bocca di un Professore che non sia avaro, e non se ne serva, che su le vocali aperti non manca mai di fare un ottimo effetto.*" A beautiful *messa di voce* in the

mouth of an accomplished singer who knows how to use it with discretion, and does not introduce it except on clear vowels, will never fail to produce a fine effect. The old Italians, who used the *messa di voce* chiefly in sacred music, more generally confined themselves to the middle register, and could therefore avail themselves of the clear timbre; we, on the other hand, nowadays move in a higher region, and must therefore make more use of *timbro chiaroscuro*.

Signora Patti's *piano-singing* is so much admired because it sounds rich and soft, and quite close even to the most distant hearer. The reason is because she forms the tone with restrained breath, and quite forward in the mouth. "The fair mean between *forte* and *piano*, the intermediate degrees, the gentle transition from the one to the other," says Professor Sieber, "seems nowadays to have entirely vanished from the art. Only too often does one hear on the stage and in the concert-hall continuous shouting which precludes or ignores all softer shades; or there is quite a new style of shading. A roaring *fortissimo* is followed abruptly, and quite without preparation, by a whispered and scarcely audible *piano*—a sequence which is most unpleasant and unnatural." "All changes in nature take place after due preparation; not suddenly, but by degrees; not by leap, but step by step. Between night and day, and daylight and darkness, lie dawn and dusk; and thus we must also in singing obey nature's hint."

All formation of tone depends on isolated diaphragmatic breathing, and thus I may, in conclusion, quote a few statements of Professor Mandl's. "There are three kinds of breathing: abdominal or diaphragmatic

breathing; throat or collar-bone breathing; and lateral or costal breathing."

Diaphragmatic breathing engages the parts below the cavity of the chest, which in inspiration are thrust forward, whilst chest and shoulders remain at rest.

In the state of rest, the diaphragm, which is a muscular membrane, forms an arch with its convexity directed upwards. When contracted it becomes flattened, and thus enlarges the cavity of the chest, whilst it dislodges the abdominal viscera downwards.

With the second or collar-bone form of breathing the expansion of the chest takes place in an upward direction. The region of the upper ribs is the one most strongly distended; that of the lower ribs is less so. The collar-bone, the upper part of the breast-bone, the shoulders, the spine, and in deep and laboured breathing even the head, take part in the motion. The rising of the collar-bone and of the first pair of ribs is specially characteristic; whence I call this mode of breathing the "collar-bone breathing."

The third mode of breathing is breathing from the sides, because the expansion of the chest takes place sideways and below. The lower ribs, and along with them the central ribs and the lower part of the breast-bone, are moved, the former passing outwards, and imparting their motion to some of the upper ribs; the second pair of ribs, however, and, above all, the first pair and the collar-bone, remaining at rest.

All the Italian schools of the seventeenth and eighteenth centuries were agreed that slow, gentle, and deep breathing (which is effected without exertion or fatigue) is an indispensable condition for a singer. As authorities on this subject, I may mention Leonardo Leo,

Domenico Gizzi, Francesco Durante, Nicolo Porpora, Francesco Brivio, Giuseppe Amadori, Antonio Pistochi, (1660-1720), Pierfrancesco Tosi (1730), Antonio Bernachi (1770), whom Handel calls "*il Re di Cantori*," Francesco, Redi, and Fedi. These masters were mostly all great singers; and their method, which will be the standard for all times, consisted mainly in the cultivation of the *portamento* and the development of the voice, with noble formation of tone. Most of them possessed the secret of making each singer sing according to his capacity and the special peculiarities of his voice, and not all one way, as is so often the case in recent times.

Nor was the florid style (the *fioritura*) neglected; and it is with good reason to be recommended to every singer as a means of cultivating voice and delivery. All the writings on the old Italian school extant, state that the florid style also formed a part of the singer's training, which must have contributed essentially to the mastery of *portamento* singing which precisely in those times attained its highest artistic perfection, and the voices were then preserved in great freshness and healthiness for a remarkably long time. The notion of the modern school, that ornamented singing would wear out the voice, is therefore altogether wrong.

It is much more the so-called dramatic singing, consisting in declamation, or, to speak more plainly, in bawling and screaming rather than in singing, by which the greatest harm is done, and in which the singer endeavours by some routine in acting to make up for the main thing in singing—viz., for singing itself. I certainly would prefer a singer who knows

how to support his performance by good acting; yet I expect of the singer, in the first place, truly artistic singing, simplicity, beauty, and truth, in the expression. The enchantment that lies in a melodious human voice goes much farther than all studied gesticulations with the arms.

The two greatest celebrities now living among us—Madms. Patti and Albani—demonstrate in the most brilliant manner the possibility, nay, the necessity, of the combination of the noblest *portamento* singing with ornamental technic. Both have tender, rich, and poetically delicate voices; and owing to the thorough studies they have made, possess a complete control over them, so that they know how to express what they feel, how to speak to every heart,—they know how to inspire and enrapture their audiences.

We have said that the great object in singing is to prevent fatigue from the exertion of inspiration and expiration. How is this to be achieved? To answer this question we have to bring home to our mind what it is that takes place in breathing. The fact is, that there is a struggle between the muscles performing the inspirations and expirations. This struggle may become fatiguing by its over-long duration, or by excess in general, but particularly through the style and manner of breathing. There will be no struggle, or scarcely any struggle, in the chest itself so long as the breathing is diaphragmatic. In diaphragmatic breathing the amount of power engaged in overcoming resistance is very little, for there are only soft and easily yielding parts to be depressed. Whenever in singing or speaking a retardation of expiration becomes necessary, the conflict between the

muscles effecting inspiration and expiration takes place only immediately above the abdominal viscera, and the muscles of the chest cannot be fatigued, as they have no exertion to sustain.

During the fatiguing collar-bone breathing the tongue is generally retracted and the larynx depressed. The result of this, again, is a diminution of the cavity of the throat—a cavity which should serve as a sounding-board for the voice. Accordingly, the unnatural position of the tongue renders the throat no longer sufficient for the demands on the sonorousness of the voice. It is thus that breathing by elevation of the collar-bone becomes injurious also to the power of the voice; and thus also breathing by the elevation of the collar-bone is extremely fatiguing, and requires the overcoming of many peculiar obstacles which do not exist in diaphragmatic breathing. As a proof, I may give an illustration from nature. The singing-birds, which certainly were our first singing-teachers, are able to modulate their notes without the least fatigue. With them breathing is exclusively abdominal; whilst their chest, the structure of which renders collar-bone breathing an impossibility, remains perfectly quiet in the upper part.

In birds the elastic nature of the supra-laryngeal portion of the vocal tube has also an effect on the height of the notes. We therefore observe that birds raise their beak in uttering high notes. In the human organism the upper portion of the tube has no such influence on the height or depth of the note.

Another reason why singing-birds do not easily get tired, I believe to be that they always sing in the register most natural and comfortable for them. Even

the illustrious *prima donna* of the woods, the nightingale, does not sing higher than one octave. Singers—particularly operatic singers—mostly give their voice an unnatural compass, both as to depth and height, by which they, after a short time, lose all mellowness, tremulate, and sing flat. They are then unable to sing a soft, steady *cantilene*, and still less a *messa di voce*. In the old Italian school the voices were much better and longer preserved, a proof of which is, that a stanch adherent of it, my master, Signor Ronconi, still sings at the age of seventy, after a forty years' career on the stage, because he long studied the art of correct breathing, and always made his vocal exercises in the middle register. I venture to draw the attention of all vocalists, both ladies and gentlemen, to the fact that exercises on the highest or on the lowest notes are sooner or later ruinous, even to the best voice. Let no one believe that practice will improve a high note which does not come out with ease from the first. On the contrary, we do not acquire the high note by forcing it, and only lose the lower and better one. When the middle register is well cultivated, the higher and lower notes will be more readily added.

Three years ago, when I sang at the Scala Theatre of Milan with the most celebrated *cantatrice* of our age, Signora Adelina Patti, in Verdi's opera "Aida," I had an opportunity of convincing myself that this heaven-endowed *artiste* likewise employs only deep breathing. Her chest is for the most part motionless, and rises and falls only in highly dramatic passages, when she expresses emotion not only in singing, but also in acting.

We must not think that our celebrities, with all their genius, could ever have done without study and exercise.

The celebrated critic, Professor Hanslick, relates, in his lately published work, 'Musikalische Stationen, an interesting conversation between himself and the Diva Patti, which took place in 1877. Among other things, Signora Patti said: "Our whole family were musical. Barilli, a thorough *artiste*, gave me the first instruction in singing, and did so most systematically, and not as an amusement or by leaps. I sang daily, for the greater part *mezza voce*," &c.

Genius is certainly the first requirement for artistic singing. Without intellect and soul, art is quite inconceivable.

The reason why singers, whose voices and mechanical training excite admiration, leave their hearers cold, lies in the want of adequate feeling. Aristotle says, the heart, too, has its share in tone. My master, Ronconi, expresses the same in the words "*Soltanto il sentimento l'arte*" (only feeling is art). Singers, therefore, may not fail in refining and strengthening, along with their natural gifts, also the faculties of the intellect and the soul.

I conclude, with Horace—"*Nil sine magno vita labore dedit mortalibus*" (life has given mortals nothing without much labour).

LECTURE SECOND

FULLY PROVES THAT THERE ARE NO NOTES PRODUCED IN THE HEAD

DELIVERED BEFORE THE

SOCIAL SCIENCE CONGRESS, EDINBURGH

OCTOBER 13, 1880

"Se l'unione non è perfetta, la voce sarà di più registri, e conseguentemente perderà la sua belezza."—PIERFRANCESCO TOSI.

"Per un cantante necessario un maestro, che sia buon cantante."
—ANTONIO PEREGRINO BENELLI.

ON THE REGISTERS OF THE VOICE.

IN most works on the art of singing one meets with the greatest vagueness with regard to the so-called registers of the voice, and to the terms applied to them. One author says there are two registers, another gives three, others four; and lastly, even five registers are given. There are chest, stroh-bass (Garcia), middle, falsetto, and head-voice.

As each larynx has its peculiar formation, the limits of the registers cannot be accurately defined for all voices, even though they be equal in character. In the same way, the statements with regard to the break of the voice, or the passage from one register to another, are in many works most misleading, especially to those desirous of studying the subject by the aid of such works.

The success of the teacher in classifying the voices of his pupils must therefore mainly depend on the accuracy of his ear, and on his extensive experience and judgment with regard to the *timbre* and character of the voices. A voice can be called properly equalised only when each note in the voice has become soft, full, and brilliant, and when there is no longer any difference observable in the quality of the tone. Here, also,

the principle may be applied, that good models are the best support in the acquisition of any art, the teacher guiding his pupils in the equalisation of their voices by his own example. It would lead me too far away from my present subject, were I to state the process here by which the voice must be equalised. I shall, however, shortly publish my views with regard to this subject. At present I shall confine myself to the untenableness of the term, head-voice; and of the various theories advanced on this subject.

Sounds are produced by the regular vibrations of some elastic body. The portion of the vocal organism on which tone chiefly depends is the larynx, with the vocal chords. The vocal chords are elastic, and may be compared to strings put into vibrating motion by a passing current of air. The height or depth of the note produced by our breath depends on the degree of tension of the vocal chords. Helmholtz says: "In the larynx the elastic vocal chords act the part of membraneous reeds. They are stretched from the front to the back of the larynx, and leave between each other a slit, called the glottis." They have this advantage over all artificial reeds, that the width of the slit between them, their tension and their form, can be changed with an extraordinary rapidity and precision, to which must be added the great variability of the superlaryngeal tube formed by the cavity of the mouth, so that a much greater variety of sounds can be produced by means of the vocal chords than by any artificial instrument. The metal reeds of the organ and the harmonium are fit only for the production of one single note each. These instruments require a special reed for each note.

In the human larynx, on the other hand, the tension of the vocal chords representing the membraneous reeds is altered independently, and determines the height of each note. The superlaryngeal tube—viz., the cavity of the mouth—has no influence at all on the height of the note. It is all the same whether we entirely shut the mouth, or open it as far as we are able—nay, whether we lengthen the superlaryngeal tube by adjusting a large tube to the mouth, or, on the other hand, whether we lessen the space of the cavity of the mouth, by putting, for instance, half an orange into it—the height of the note will remain always the same; it is only the *timbre* (quality) that is greatly influenced by the superlaryngeal tube, to which point we shall refer more particularly further on. The top of the throat, or the pharynx, is a cavity having the shape of a flattened funnel or crater, the wider part of which communicates with the cavity of the mouth and the nose, and, indirectly, by means of the larynx, with the cavity of the chest. These cavities act as sounding-boxes, and have, as is self-evident, great influence on the volume of sound produced by the voice.

Professor Tyndall says: "The air is put into sounding vibration not by the strings of the harp, or the lute, or the piano, or the violin, but by the large surfaces connected with the strings, and by the air enclosed between those sounding-boards."

The quality of these instruments depends almost entirely on the quality and adjustment of their sounding-boards. Now the very same also applies to the volume and quality of the human voice. But the greatest influence on the quality of the voice is exercised by the anterior part of the roof of the mouth

situated right above the upper teeth, and it is this arch that, by its very structure, appears to be the true sounding-board for the human voice. Only the tone striking the hard palate is fit and proper for artistic singing, and the art of obtaining it must be the great aim of every singer.

I have convinced myself, by constant observation, that with an equally correct intonation, the tone is the more sonorous and clear the harder and the more arched the roof of the mouth is; and that, on the other hand, the tone is dull and feeble when the roof of the mouth is soft and low.

I maintain that we produce every sounding note in the larynx by means of the vocal chords, and that all notes—deep, middle, and high—sound full and round only when we send the well-concentrated breath right against the hard palate. The old Italians, however, as well as most teachers of singing and physiologists of modern times, assert that the high notes are produced in the frontal and nasal cavities, and call these notes falsetto, or the head-voice.

It would take hours were I to quote all the passages of authors treating on the head-voice, and I therefore confine myself to some of the most noteworthy of older, of recent, and of most recent date. Mannstein, 'Grosse Gesangschule des Bernacchi von Bologna,' p. 5, says: "One feels that the note takes a different direction from that of the chest-note.

"It would seem, indeed, as if the note were travelling into the back part of the head, then performing the way to the upper part of the cranium, from thence to the brow, and finally descending into the mouth."

Bennati, 'Mémoire sur la Mécanisme de la Voix pen-

dant le Chant" (Paris, 1832), says that "high notes are not produced in the larynx, but altogether above it."

Alberto Randegger, Professor, Royal Academy, London, in his work on Singing, p. 22: "To produce the notes belonging to the head-register, the sound must be sent in an oblique direction, so that it should ring in, and reverberate from the highest part of the back of the head."

Professor Zopff, Leipzig, 1878: "The head-register, which ranges from the twice-scored *f* to the thrice-scored *f*, and sometimes even to *a*, one feels in the upper part of the head (in the skull)—from the eyes to the vertex: the sounding air must here, even more intently than with the middle register, be compelled to pass through the nose instead of only to pass out by the mouth. The more perfectly one succeeds in this, the more beautiful and powerful sound the notes of the head-register."

Such notions now have existed for two hundred years, and I am going to prove that there is no head-register or head-voice.

It is well known that in singing notes can be formed only on the vowels; only a vowel can give the voice scope and occasion for sounding, whilst a succeeding consonant extinguishes the sound, and a preceding one detains it until the vowel is formed. Professor Merkel, 'Physiologie,' says: "The vowel is every sounding current of air conducted solely through the oral cavity and out by the mouth."

The foundations of the vocal system are, *a* = (ah), *i* = (ee), *u* = (oo). They are also called primary vowels, because all other vowels and diphthongs may be formed out of them, just as red, yellow, and blue are primary

colours, since all other colours may be composed of them. If we sound the vowels *a*, *e*, *i*, *o*, *u*, or the diphthongs *ou*, *ei*, &c., without singing them, we may observe in a looking-glass that the soft palate, or the *velum palati*, is raised, by which act, with healthy organs, the passage of the air through the nasal cavities is prevented. It is only with the consonants *m*, *n*, and *ng*, that the *velum palati* is lowered and part of the air passes through the nose, causing nasal resonance; but if we have to sing words with these consonants, the note has been formed beforehand, and *m*, *n*, and *ng*, join in softly —*ng*, *song*, *once*, *one*, *klang*, &c. That with these consonants air passes through the notes, we may observe, according to Dr Grützner, by the following experiment. Let an india-rubber tube be inserted in one of the nostrils, the tube ending in a glass tube, bent in the shape of a U, and filled with water, then close the other nostril, and pronounce the words *ome*, *one*, *oncle*, and you will observe that the water does not stir with the sound of *o*, but that it leaps up in the glass tube with the starting of the *m* and *n*. With the latter word, *oncle*, one occasionally sees the water rise. I, however, have observed this only on pronouncing the *o* itself with a nasal accent (as in the English uncle). Moreover, Professor Czermak describes the speaking of a girl whose *velum palati* was firmly attached to the posterior faucal wall, and states that this girl was able to form the consonants *m* and *n*, but not *ng*. A similar case is noted by Löwenberg (nasal voices). The raising of the *velum palati* is greatest with the vowel *i* (ee), *u* (oo), *ī*, *e* (ā), and *a* (ah), following in succession. I

have made numerous experiments with myself and others, and convinced myself that the *velum palati* hermetically closes the *cavum pharingo nasale* with all the vowels and diphthongs, whether we speak or sing them. I quite gently injected tepid water into the nose of a person whilst making him sing the vowels, and not a drop went into the throat (pharynx).

Professor Brücke ('Grundzüge der Physiologie') has proved the completeness of the shutting up of the *cavum pharingo nasale* by a simple experiment—holding a small flame of a candle in front of the nostrils whilst producing the vowels. It was only when he gave them a nasal twang that the flame commenced to flicker: when formed in their purity, the flame remained quite steady.

The celebrated Signor Garcia maintains in his singing-school that in singing the *velum palati* must be raised with a veiled or overcast *timbre*, but let down with a clear or bright *timbre*, which I, however, have found in numerous trials to be not the case. It is quite correct to say that the larynx is more depressed with the veiled than with a clear *timbre*, but the position of the *velum palati* remains the same.

Passavant (Frankfurt, 1863) has furnished proof of the completeness of the closure effected by the *velum palati*. Whilst pronouncing the vowels (*ah, e, i, o, u* (oo),) he had, by means of a small tube, water thrown into the very back of the nasal cavity. The water stayed there, and did not flow down to the lower part of the pharynx. He afterwards repeated the experiment with milk, because the descent of this liquid could have been detected by the eye, and the success was a most complete one. We therefore see that, even

in pronouncing the vowels, a hermetic closure of the nasal cavity takes place. In the act of swallowing, likewise, a movement of the soft palate occurs, the suspended *velum palati* being raised, and completely shutting the cavity of the mouth against the *cavum pharingo nasale.* Swollen tonsils prevent the raising of the *velum palati;* and the incompleteness of the fitting of the *velum palati* to the posterior wall of the *pharingo* is held to be another cause of the nasal accent.

Taking into account only singers with normal vocal organs, I maintain that, in forming any note, only the cavity of the mouth, and especially the arched hard palate, is to be considered as resonant.

If the *velum palati* is lowered, the current of air proceeds to the base of the skull, and is thence diverted into the nasal cavity. A *prima donna* of the Milan Opera (Dal Verme), who refused to sing on account of a cold in the nose, was compelled to sing on the declaration of the acting physician, to the effect that a cold in the nose was not an impediment sufficient to prevent singing. The lady had to sing, and I never heard her so-called head-notes to greater perfection: it was only after some days, when the inflammation had affected the larynx, that singing became impossible to her, and she had to take a few days' rest.

As an objection to my opinion, it might be asserted that the vibrations of the air are continued to the nasal cavity through the soft palate; if this be possible at all, it can be but to a very insignificant extent.

Rather than this, it might be assumed that the vibrations of the bony palate, partaking of the reso-

nance in the mouth, are imparted to the air contained in the nasal cavities; for it is understood in acoustics that sounds are reflected by hard surfaces, as the rays of light are, and just as the polished surface of a glass reflects more light than a rough or dimmed sheet. So also certain bodies are more than others apt to send back the waves of sound; *hard and strong* substances (especially if as elastic as the hard palate) reflect sound better than soft and flabby ones, which yield too much to the impact, as, for instance, the *soft* palate.

I have tested the question with well-schooled singers of every class of voice, from bass to soprano, and I have found that, when I closed their noses during the forming of deep, middle, or high notes, there was never any difference observable either in the power or *timbre* of the sound. Lately I examined with the laryngoscope a Zulu; he was about thirty years of age, and a very strong man. I made him sing a few songs to me, and was struck with the feebleness of his voice; it was rather a nasal performance, a great deal of breath escaping through the nose—in short, the style of singing of this *artless* son of the bush led to the inference that hé had not made his studies under any celebrated *maëstro*. I examined his larynx, and found it well developed with broad vocal chords. Judging from this, I should have expected a powerful bass voice. With the vowel *ä* I saw the vocal chords vibrating in their whole length and breadth on the one-stroked *c*. His tongue moved readily, the palate well arched, the nostrils pretty wide: holding a glass to his nose whilst he was singing, I found it at once dimmed, and I therefore feel entitled to say that the passage of breath through the nose *weakens* rather than *strengthens the*

resonance; the same thing I observed with a baritone. With an alto and a soprano, I observed that they complained of pain in the head after a few minutes when I made them sing *piano* the vowel *a*; on close examination I found that a portion of the breath was escaping through the nose. I then induced them to make the following exercise before a looking-glass. Whilst taking breath in short and quick gasps, they had to raise the *velum palati*, especially the uvula, in such a way that one could see but a small tip of the latter; and they succeeded after a short time in closing the nasal cavity hermetically by this higher position of the *velum palati mollis*, and now they no longer complained of pain in the head whilst singing *piano* the vowel *a*.

When giving a concert and lecture in London this season, I made a lady, now well known as an artist, sing notes of the so-called head-register. She maintained that she formed the high notes in the head, and her master in Milan had stated to her that, with head-notes, the air must pass through the nose, so as to resonate from the cavity of the skull and the ear; besides, that the pressure must be felt between the nose and the eyes. "If you really form your head-notes in this manner," I observed, "air must escape through your nose." On placing a glass closely to her nose, it remained clear and undimmed; besides, I caused her to close the nose whilst she was forming head-notes, and there was no difference observable in sonorousness and power. "Do you see now, Mademoiselle, what is imagination?" I said.

And here I bring my last and most forcible proof. I made a skilful surgeon close the *choane* of a soprano

by means of an instrument which deserves notice on account of its remarkable simplicity and adaptability. This instrument consists of a small india-rubber tube, branching into two elongations of the requisite length, each of which terminates in a little hollow bulb or balloon exactly fitting the *choane*, and when the whole tube is inflated with air or filled with water, no air can, under any circumstances, penetrate into the cavity of the nose from the mouth. The lady sang then, under this arrangement, the so-called head-notes, and there was not the least change, and the note sounded as sonorous as before. I believe what I have said to have fully proved,—that there is no head-voice, or that there are no notes produced in the head; and it would be well if this misleading term were abandoned in singing-schools. Every teacher of singing ought to have some knowledge of the anatomy and physiology of the vocal organs; certainly he ought to know accurately the structure of the larynx, and of the superlaryngeal tube.

Duprez indeed says: "*Un poeta non ha bisogno di conoscere la fisiologia del cervello per fare dei versi cosi del pari e inutile sapere l'anatomia degli organi vocali per cantare.*" (A poet does not require to know the physiology of the brain in order to write poems, and as little the singer requires to know the anatomy of the vocal organs to be an *artiste*.)

Another author writing on music, Herr Truhn, observes: "Mozart knew nothing of the researches of Chladni and Helmholtz, and as little does one require to have studied the physiological analysis of the vocal organs to be a good singer."

The true *artiste*, says Guhl, is as the true poet—

heaven-born; but in reality he becomes so only when he adds to the gift of Heaven his own labour, strength of will, and the fulness of knowledge. I am ready to admit that physiological inquiry and anatomical studies have never made a great *artiste;* as little, however, I can admit that an *artiste* has been any the worse of the possession of that knowledge.

It is not the task of pupils to busy themselves with such inquiries in the first place,—their sense of beauty must be developed and cultivated; nor may their intellectuality be neglected,—the acquisition of musical knowledge being of course premised.

The professor of singing, on the other hand, must apply the results of science by imparting to his students the established facts of science. Nor must he rest satisfied with simply accepting more recent theories. He must endeavour to approach the truth by his own observation, for anatomical and physiological research have by no means solved all the mysteries of the production of voice. Yet we have of late made great strides in advance.

Galilei, when, at the age of nineteen, he observed the swinging of a lamp in the cathedral of Pisa, was led to the discovery of the theory of the pendulum, which he first laid down, and employed in the mensuration of time.

How many saw swinging lamps before Galilei? And it is likely that the world would have existed without his thinking and inquiring. But who can tell if, without him, we would know the law of the pendulum to-day? In the same way, I believe that further observations made on the *swinging vocal*

chords will perhaps give us more light on the development of the voice, and ultimately lead to perfect results.

Intelligent inquiry and indefatigable searching after truth are the real attributes of man. Goethe indeed says, "Man errs as long as he is striving;" yet at all ages the active and inquiring minds have profited the world more than the idle onlookers.

LECTURE THIRD

HOW IS THE VOICE TO BE EQUALISED?

ON CHEST AND FALSETTO VOICE, *VOIX MIXTE* (MIXED VOICE)

ON THE VOCAL THEORY OF HELMHOLTZ

ON *TIMBRE*

THE OLD BERNACCHI SCHOOL OF BOLOGNA

THE OLD SINGING SCHOOL AT ROME

ON LARYNGOSCOPY

CLASSIFICATION OF VOICES

DELIVERED AT THE

FREEMASONS' HALL, EDINBURGH

OCTOBER 29, 1881

"Die menschliche Stimme ist die praktische Grundlage aller Musik, und, so weit diese sich auf dem ursprünglichen Wege entwickeln möge, immer wird doch die kühnste Combination des Tonsetzers, oder der gewagteste Vortrag des Instrumentalvirtuosen an dem rein Gesanglichen schliesslich das Gesetz für seine Leistungen wieder aufzufinden haben."—RICH. WAGNER: *Ges. Schriften.* Band 8.

Das Wort Register sollte aus der Theorie des Gesanges gestrichen werden—

"Wo Begriffe fehlen da stellt ein Wort zur rechten Zeit sich ein."—GOETHE'S *Faust.*

ON THE

EQUALISATION OF THE VOICE, ETC.

IN my second lecture, which I gave to the Social Science Congress in October 1880, I promised to state on some future occasion my views on the equalisation of the voice. To-day I propose to redeem that long-standing promise, and would ask you to accept this as a continuation of my second lecture.

The most important task in the formation of the voice will ever be to equalise the registers, or, more correctly, to obtain equality in all the notes of the voice, so that they appear all of one mould from the lowest to the highest; and this is indeed the first demand we have to make on the vocal artist.

By register of notes one generally understands a succession of notes produced by the employment of one and the same vibrating mechanism. Whenever, in aiming at the production of a certain scale, we produce a so-called involuntary leap or break—*i.e.*, whenever, between two notes of this scale, a perceptible alteration of the breathing, of the pronunciation, and of the *timbre* occurs, these two notes belong to

different registers. In the organ, the access of wind to the different sets of pipes is permitted by stops, which are called "registers," and only those sets of pipes, the stops corresponding to which are pulled, can, on pressing the keys, be made to sound.

I think the term "register" not well applied to the human voice, this term being borrowed from the mechanism of the organ, which has no resemblance to that of the human voice, and which certainly came into existence at a considerably later period. While an organ requires many sets of pipes for the production of sounds of different pitch and of different *timbres*, the human vocal apparatus has but a single pipe, which, however, can produce a greater variety of effects than all the organ pipes in the world.

Undeniably the human voice is the first and most ancient instrument, and it is plain that man used, before all others, his own vocal organ for the expression of his sentiments. Who could doubt this, all nature being replete with sound and song? How should it have been denied to man, the noblest creature, even at the creation? Tradition indeed has it, that in the golden age the beasts all conversed familiarly with man, but that since then they have merely concealed their speech, and allowed it only to break forth when under some sudden great impulse, as when the ass of Balaam began to speak when she was wronged, and the angel of the Lord appeared unto her. Surely the very first human couple did sing, for they lived in Paradise, and I, for one, cannot imagine Paradise without song. Whether they also sang duets, I cannot tell; still this too may be assumed, seeing that they lived in undisturbed *har-*

mony before the Fall. Yet that they did not sing a duet such as Father Haydn puts into their mouths in his "Creation" I venture to assert most emphatically. Granting, then, that the human throat is the most ancient instrument, I do not see why we should borrow terms for it from the organ. It sounds to me comical, just as if one took it into his head to name the father after the son. I believe it would be more correct and more intelligible to say: Every voice, whether male or female, consists of deep, middle, and high notes, which have their peculiar vibrating mechanism, deep and middle notes being produced by the chest-voice, higher notes mostly by the falsetto; or, we have chest notes produced naturally, and falsetto notes produced artificially. Some of the old Italian masters distinguished between *voce di petto* (chest-voice) *e petto falsetto* (*i.e.*, false chest-voice), and I shall here discuss more particularly the manner in which the notes of the voice must be equalised, so as to attain the great object in view—viz., uniformity of voice.

I shall in this lecture retain the terms used by many masters, leaving it an open question whether they are correct or not. The teacher of singing must equalise the voice intrusted to him in the most natural way, and must not talk of "registers," of which, erroneously, five have been described in most singing manuals. If we are to speak of registers at all, there are but *two*—chest and falsetto register.

By hearing of so many registers, the pupils are only confused, without any compensating advantage. There are among the so-called celebrated *maëstri* in Milan, Paris, and elsewhere, occasional charlatans,

who envelop the most natural things in a certain mystery. Some of them, in explaining the producing of the low notes, put their hands to the diaphragm, and, when speaking of the high notes, to the forehead, and some to the back of the head, and tell their pupils that they must have a feeling as if the notes were *formed* in these parts; others again say that the notes must be directed thither. The fact is that none of the pupils have any such feeling from the beginning, and it is only after some months that, hearing the same thing repeated every day by the *maëstro,* they fancy that they feel some kind of sensation in their heads, &c. Similarly great is the mischief other masters work, in fixing the larynx! They declare that the singer must sing only with a fixed immovable larynx; and yet the larynx is in constant motion during singing. It rises and falls according to the timbre employed, and it is precisely on the free play and free action of the larynx and its muscles that proficiency in singing greatly depends. It is superfluous and even impossible to determine the exact limits of the play of the larynx, and there are singers with long and singers with short necks.

The larynx is something like a barometer. With a high or clear *timbre,* used in expressing joyousness, it rises; with a low or dull *timbre,* expressing grief and sorrow, it falls; just as the barometer rises with fine weather and falls when the sky is dull and overcast. So we see the dramatic singer erect and actually taller in a joyous and animated mood; when in sorrow, his figure loses, he is bowed down and appears less. Hence we properly say "in high glee," and "cast down with sorrow."

With the *timbre obscure*, the vowels *o* and *u*, the larynx stands low. Merkel, in his 'Physiologie der menschlichen Sprache,' notices the interesting fact that in cases of the entire loss of the upper teeth, the larnyx stands somewhat lower for *o* than for *u*. The vowel *a* has the widest variation in both directions; it may be coloured dark and bright, semi-dark (*chiaroscuro*), and medium bright. By a more or less arched or oval position of the mouth every vowel may be made more or less dark or bright. Besides, all the vowels undergo a modification, according as the breath is directed either to the upper part of the hard palate, when the *timbre* becomes sombre, or to the part immediately above the teeth, when it is clear.

Physiologists have drawn attention to the fact that the *timbre* and the vowel enounced depend on the variable form of the so-called superlaryngeal tube,—*i.e.*, on the expansibility, in size and shape, of the cavities of the pharynx and mouth—and that even the various positions of the larynx observable with the different vowels, as also the position of the tongue, have a direct bearing on this expansibility,—*i.e.*, on the elongation and expansion, or on the shortening and contraction, of the superlaryngeal tube. This tube is, *e.g.*, most expanded with the vowel *u*, and most contracted with the vowel *i* (ee), whence the larynx stands lowest with the former, and highest with the latter, and the tongue flattens most with the *u*, and is most arched with the *i* (ee). Naturalists have observed that the several vowels have each a certain pitch of their own. Here the Dutchman, Donders, and your countryman, Willis, deserve special mention. Donders was the first to discover the fact that the

cavity of the mouth, shaped to produce the different vowels, resounds at a different pitch for each. This he found by observing the sounds emitted from the mouth whilst whispering; and further, he found that whilst thus whispering so as not to be misled by the sound of the voice, one recognises in each vowel a note of a particular pitch, which can be musically determined. This note, then, is the characteristic of the vowel, since it is the peculiar note of the cavity of the mouth when shaped to produce that particular vowel. Whenever one tries to produce the different vowels softly,—*i.e.*, without vibrating the vocal chords, —one observes that it is impossible to produce them all at the same pitch as can readily be done in singing, but that certain vowels must be uttered at a lower, and others at a higher, pitch, if they are to be distinguished at all by the ear. Generally the vowels in this respect succeed each other in the following order: —*u*, *o*, *a* (ah), *e* (ā), *i* (ee), in such a way that *u* causes in proportion the lowest, and *i* (ee) the highest number of vibrations.

Professor Joh. Czermak read, in 1859, to the Academy of Sciences of Vienna, an interesting communication about the case of one of his patients, whose vocal cords had, in consequence of a process of ulceration, become united, so that the glottis was completely closed up, but who, nevertheless, did not exhibit, as one would have expected, a total absence of sound and voice—the mere condensation and rarefaction of the air contained in the cavities of the mouth and throat producing an amount of sound phenomena which made the speech of the patient still audible at a certain distance. It will be understood that breathing in

this case was rendered possible by the insertion of a little tube below the glottis.

When in Milan, in 1877, I became acquainted with a Russian bass singer, Mr Bedenka, who had a voice of great, yet a body of still greater, compass. He was a passionate smoker, and fond of making his stoutness a plea for indulging in the weed, maintaining, as he did, that persistent smoking would relieve him in some measure of his bulk—an expectation which, by the way, he did his best to frustrate by the gigantic appetite he developed, especially after every singing lesson. "Look," said he one day to me, taking a tremendous whiff from his long Turkish meerschaum, "Look how I am living on smoke." (I must mention here that Russians do not smoke like the Western nations, but that they completely inhale the smoke into their lungs.) Thus, having filled his mouth with a large volume of smoke, he spoke to me a few words in Russian. These I did not understand, but they gave me the opportunity of observing the most remarkable fact that, although he was talking, none of the inhaled smoke reappeared from the mouth. He had accordingly entirely closed his glottis, and it could only be by the alternating condensation and rarefaction of the air contained in the cavity of the mouth that he produced those few words.

Professor Störk made a similar experiment with his servant. He made him inhale tobacco-smoke and retain it in the windpipe with the glottis closed, as long as the smoke did not reappear. Professor Störk says he could convince himself of the glottis being hermetically closed, and he succeeded in making his servant speak during that time.

Helmholtz has most clearly demonstrated that the cavity of the mouth, or rather the air contained in it, responds to different notes according to the different shapes it assumes (p. 165). The safest and easiest way to determine those notes, to which the air contained in the cavity of the mouth resounds when shaped to produce the different vowels, is the following:—Vibrating tuning-forks of different pitch are successively held to the aperture of the cavity—in our case to the open mouth,—and when the note of the vibrating tuning-fork corresponds with the note peculiar to the air contained in the cavity, that air resounds. As one may vary at will the cavity of the mouth, it may also be readily adapted to the note of any given tuning-fork; and by this means one can easily determine what shape must be given to the cavity of the mouth in order to make the volume of air in it resound to a given note. It is the possibility of variation in the dimensions of the open cavity of the mouth, then, which renders it possible to produce different vowels. The vowel *a* (ah) being the best and most natural vowel, opens the series. It demands a shape of the cavity of the mouth, widening pretty uniformly from the larynx upwards, in the form of a funnel. With the vowels of the lowest series,—viz., *o* and *u* (oo),—the vocal cavity is narrowed in front by the lips, so that it is narrowest in front when sounding the *u* (oo), being at the same time as much as possible expanded in its middle by drawing down the tongue, and it then assumes fairly the shape of a soda-water bottle without the neck, and with a rather narrow mouth, while its internal surface is continuous in all directions without any interruption. The pitch of

such bottle-shaped cavities is the lower, the wider their inner hollow and the narrower their aperture. Every bottle accordingly has two notes of its own—a higher one produced by the neck, and a lower one produced by the wider part. With the *u* (oo), in producing which the cavity of the mouth is widest and the lips most contracted, the resonance is deepest; it answers to the lower *f*. In going over from *u* to *o* the resonance gradually rises, so that a pure *o* is equal to *b′* flat. If, therefore, a *b′* flat tuning-fork is placed vibrating before the mouth, the parts of which are adjusted as if to pronounce the vowel *o*, the tuning-fork is heard giving out a very loud and full sound, so that the whole audience can hear it.

In gradually changing the shape of the cavity of the mouth from the position of *o* through that of *o* plus *ä* to that of pure *A*, the resonance correspondingly rises by degrees, a whole octave to *b″* flat. This note corresponds to the North German A (ah). The somewhat sharper A of the English and Italians rises to the pitch of *d‴*, and is thus higher by another third. Helmholtz further observes the particularly striking circumstance, that very small differences of pitch correspond to very considerable deviations in the sound of the vowel *a*, and he would, therefore, particularly recommend elocutionists to determine the pitch of strongest resonance for the cavity of the mouth in defining the vowels of different languages.

We see, then, what an important part the position of the mouth plays in singing, and once more would remind students that the *timbre* does not depend on the vocal chords, but on the superlaryngeal tube and the position of the mouth.

If the singer have a sufficiently arched and capacious mouth, his tone will in most cases be full; for, as already mentioned, the mouth or superlaryngeal tube is the space upon which depends the resonance of the voice, and the form and condition of the superlaryngeal tube materially contributes to the beauty of the tone as also to the development of its power, while the function of the larynx and the vocal chords is the production of sound. A larynx and chest naturally well developed and large, do not always insure a full voice; there must also be a capacious cavity of the mouth. We sometimes observe giants with the voices of dwarfs. I have repeatedly convinced myself that all singers who have a flat and low palate have also feeble voices at their command.

I shall add here a few words on wind instruments. Most of these widen at their mouths into a bell, which, being of special width in the case of brass instruments, forms an essential resonator, and more or less affects the *timbre*. It is on the latter, and by no means on the pitch, that an influence is exercised by the greater or less width of the tube, so that, *e.g.*, the tone of a trumpet with enlarged tubes becomes fuller indeed, but, in proportion, loses in penetrating metallic ring. Thus also with wind instruments, it is not on the mouthpiece, but on the form of the widened end, that the fulness of tone depends.

According to Helmholtz, the pitch proper of the cavity of the mouth is f on u (oo), b' flat on o, b'' flat to d''' on a, &c. The correctness of Helmholtz's determination of the pitch of the vowels is proved by the observations made with resonators. These are hollow globes of glass or metal, having an aperture on

one side, and on the opposite a narrow tube which may be inserted into the ear. The air contained in these globes is inclined to vibrate at a certain pitch, which depends upon their size and upon that of the aperture; thus one, for example, may be tuned to A, another to G, and so on. If the note at which the air in the globe tends to vibrate is sounded by some instrument, or by the human voice, then by resonance a corresponding vibration of the volume of air contained in the globe is immediately set up, and audibly produces a more marked effect than any other note of a different pitch. These resonators, invented by Helmholtz, show that each single tone contains several partial tones. We commonly think that, in hearing a single note of the violin, the violoncello, the clarionet, or of our own voice, we hear but that one tone. Closer examination, by means of these resonators, has shown this to be a mistake. In reality, there sound along with it a number of higher tones which are called the upper partials. Helmholtz further concludes that the *timbre* depends on the greater or smaller number, and on the greater or smaller intensity, of these upper partials relatively to the fundamental tone. If, then, the note we sing corresponds in one of its upper partials or harmonics with the note of the cavity of the mouth, the two notes support each other, and combine to form a sonorous whole. Seeing, then, that the air contained in the cavity of the mouth is pitched for different notes according as that cavity alters its shape, it will be understood that every singer is tied down to a law compelling him to find the proper position of the mouth for each note sung. The superlaryngeal tube being differently formed in each

individual, a correct position of the mouth can but approximately be prescribed. It is therefore left to the singer himself to try and to listen carefully until he at length feels his way into the correct position of the mouth, and also into the most beautiful tone. Every singer ought to acquire the Italian pronunciation, and in every country singing studies ought to be made in Italian; for unquestionably the Italian language is naturally the most musical and euphonious, and, as it were, it challenges the singer to seek the position of the mouth that makes its euphony tell. It would lead us too far were I to enter more minutely on this part of the subject.

Professor G. Engel, in his essay on the vowel theory of Helmholtz, aptly remarks: "The teacher of an art, who wishes to keep abreast with the times, will have to take notice of all scientific discoveries bearing on his art; yet he will have to do so with that discretion which cannot be dispensed with in dealing with any human performance. It is certain that exact scientific investigation leads to more perfect results than the, so-to-speak, groping sense, which is the real organ of the artist; yet science advances slowly and step by step, intuitive feeling grasps the whole at once. There is some danger of losing the whole by engaging too minutely in some of the parts, in too explicit a devotion to scientific research. The artist or professor of an art must not allow his artistic sense or tact to be marred by theoretical inquiry. On the other hand, our sense or tact again depends on our natural dispositions, habits—nay, even on the mood of the moment; and it is only by scientific insight that our natural sense can be cultivated, developed, and confirmed.

Then our knowledge and feelings limit and compensate each other, and he who possesses the faculty of combining both tendencies and functions will best fulfil the conditions of real improvement in artistic tuition."

Here a few words on the position of the larynx. This position is highest in swallowing, it is lowest in yawning; indeed, I know a *maëstro* in Milan who proposed to impart to a bass singer the deepest notes through the medium of yawning. I listened to some of those lessons, and have to confess that I thought them very tiresome, and although master, pupil, and listener often enough performed such yawning trios, I have to declare that this method is not to be recommended. It rather struck me that the pupil did not sing true. According to Cassius Felix, 97 A.D., hearing is impaired by yawning.

For certain parts of the scale one *timbre* is more suitable than another. Bass singers should, generally speaking, not pass beyond the *c′* sharp or *d′* in the *chiaro*. In the same way baritones should not in the *chiaro* pass beyond *e′* flat, and tenors not beyond *f′* sharp, as the notes beyond these would lack softness, and as besides this the clear or *chiaro timbre* would, with notes higher than these, injure the voice. Many bass singers sing flat, because when starting in the middle register they take the tone too much in the *oscuro*, and with too close a position of the mouth. This faulty way of starting not only spoils the certainty of attack, but it also injures the voice. If singers, subject to this fault, have to sing a high note, they press and squeeze it out and contort their faces that the very sight makes one feel uncomfortable, quite apart from the effect produced by their roaring.

In the "little octave" between and between *f* and *a*, bass singers are inclined to obscure the tone; tenors, again, do the same between and *g* and *b* flat. This tendency may be corrected by making them, from the first, sing only *chiaro* vowels on these notes. The notes between *f′* sharp and *b′* sound well in the *timbro oscuro* with tenors as well as altos. The same applies also to soprano voices in the two-stroked octave, as they lose distinctness and precision in the higher notes by using in them the *timbro chiaro*. In the twice-scored octave —that is, above *c″* in the treble clef—sopranos must avoid the sharp *i* (ee) and the dull *u* (oo). Most singers will find these vowels inconvenient, and beauty of tone being the *sine qua non* with every singer, an alteration of those words of the song in which such vowels occur is admissible, with due regard to the sense of the piece. Celoni, 'Grammatica o sieno régole di ben cantare' says: "*Le vocali l'i e l'u si devono evitare e lasciarle a coloro che avessero la mania d' imitare i cavalli ed i lupi.*" "The vowels *i* (ee) and *u* (oo) ought to be avoided, and to be left to those who have a mania for imitating horses and wolves." Mancini (p. 299) says: "*I ed u la nostra professione chiama vocali proibiti.*" "Our profession calls the vowels, *i* (ee) and *u* (oo) prohibited vowels." Professor Brücke in his 'Physiologie der Sprachlaute' remarks: "*I* (ee) has the highest characteristic sound, *u* (oo) the lowest. It is therefore admissible in composing for singing to put a high note for a syllable containing the vowel *u* (oo). I should add, however, high notes sung

to the vowel *i* (ee) will rarely sound pure, and I would suggest that this vowel should be moulded towards the sound of *ü* (oo), if an alteration of the word in which it occurs be not possible; thus it will be at least somewhat less offensive than the shrill *i* (ee). Helmholtz is of opinion that the vowel *i* (ee) is the one most easily taken on high soprano notes. Experience, however, is against this assertion. The most celebrated sopranos, Mesdames Patti, Albani, Bianchi, &c., will be found either to avoid the *ee* altogether, or to take it so much in the *timbro oscuro* that one only has a suspicion of the *ee*. In most cases, for the word containing the *ee* another word with a more suitable vowel is substituted.

With every singer whose voice has not yet been distorted by some pedant inimical to nature, we observe that he is able to sing the usual scale of his natural chest notes in the middle register with a special richness of sound, and this without any exertion at all. These notes are those which people make use of in ordinary life, and which are also called chest-notes. It is by *producing* from these readily started healthy notes that the studies of the voice or of equalisation must be begun, extending the compass of the natural chest-voice by the addition of the artificially produced falsetto notes. The vibrations of the vocal chords in using the chest-voice are chiefly *lateral*, with the falsetto register they are *vertical*. With the chest-voice the glottis is opened for a moment for each note and closed again by the so-called counterstroke or recursion. With the falsetto register the glottis remains continuously open as a slit, the chords moving up and down. By the closing of the glottis,

which occurs with each oscillation of the chords, the chest-note obtains a full resonance in the windpipe as well as in the entire cavity of the chest and of the mouth, whilst the falsetto note, in singing which the glottis is always left a little open, does not participate in this advantage in equal measure, the resonance then being effected rather in the superlaryngeal tube—*i.e.*, the cavity of the mouth and the adjacent parts.

In chest-notes the vocal chords vibrate in their entire breadth and bulk, whilst in falsetto notes the inner free edges alone are in motion.

When we use our chest-voice in loud singing or talking, the oscillations of the chest are so intense that other persons can distinctly feel them, not only by touching the chest, but even indirectly through other solid bodies,—as, *e.g.*, through the backs of chairs when sitting back to back with the person singing or speaking.

Such oscillations, besides, are so characteristic of certain definite sounds that some deaf persons are enabled to understand the words spoken solely by placing their hands on the chest of the speaker, without looking at him.

An oscillation of the bones of the head is perceived with the vowel *i* (ee) only when it is sung, spoken, or pronounced with some energy. The reason is that, as is well known, with the *i* (ee) the air can be emitted by a narrower channel only between tongue and palate; and the narrower the exit by which the voice reaches the open air, the more are the sides of the laryngeal tube and the adjacent parts made to oscillate, and accordingly the head also. In placing

the hand on the top of the head we feel this oscillation more strongly with the *i* (ee) than with any other vowel, and this circumstance is accordingly taken advantage of in teaching the deaf and dumb to speak, a tangible means being offered to them for the acquisition of the *i* (ee).

Returning now to our subject, we find Cicero (*de oratore*), even at that early time, making the following remark: "In every voice there is a certain middle note which exclusively belongs to it. To make the voice rise by degrees from this middle note to higher ones is useful and agreeable, as well as conducive to the invigoration of the voice."

When C. Gracchus, an eminent orator of his age, spoke to the people, there stood behind him a musician with a pipe which was called *tonarion* (pitch-pipe), in order to give him the pitch in which he was to speak. This precaution stood him in good stead, as he did not overstrain his voice even when in the greatest passion. Such *tonarions* were made use of by the greatest speakers of antiquity.

The French Academician, M. Legouvé, proves in his work, 'L'Art de la Lecture,' to a public speaker, that the failure of his speech was to be ascribed solely to his having taken too high a key for the middle tone of his speech, owing to which he had afterwards no longer at his command the means of intensifying the expression in the most significant and telling passages.

J. J. Engel, 'On the Beauty of the Simple,' says: "Altogether, the middle notes are both the sweetest to the ear and the most impressive to the imagination; the lower or higher the notes become the less grateful they are to the senses, and the heavier becomes the

mood. For the eye, also, the too high and dazzling colours, as well as the too deep and blackened ones, are both the least agreeable and least definite."

I shall now point out the middle registers for the different classes of voices :—

Soprano,	*f′*	*g′*	*a′*	*b′*	*c″*	
Alto,	*c′*	*d′*	*e′*	*f′*	*g′*	
Tenor,	*a*	*b*	*c′*	*d′*	*e′*	
Bass,	*c*	*d*	*e*	*f*	*g*	*a*
Baritone,	*e*	*f*	*g*	*a*	*b*	*c′*

Progressing from any of those middle registers, then, there may be added, *piano*, one to two notes, extending the scale both upwards and downwards. Let the scale thus formed be sung up and down gently, and with but little expense of breath. In ascending, let the transition note still be taken in the lower register ; and, in descending, still in the upper register. Every transition note must be cautiously and softly started, and only later on it may be sung *mezzo-forte*, and more firmly attacked, *coup de glotte.*

As full equality, especially on account of the transition into falsetto, can be obtained only in *piano* singing, the equalising exercises must never be sung *forte* at the beginning. It would be impossible to determine on paper the degree of such *piano* singing, for nature is multiform, and there are no two voices alike. The volume of breath each singer requires for the equalising of his notes with regard to strength cannot be determined beforehand, and it therefore remains relative, not absolute. If a register is forced too high upwards its high notes sound harsh, dry, and strained, and if the attempt is made to sustain such a high note

crescendo it refuses,—one might say it snaps off, it cracks. If notes of a strikingly flaccid or cold character occur, they show that the upper register has been strained too far downward on that part of the scale, and this register must therefore be relegated to its proper position in the upper part of the scale.

The vowel that offers most advantage for these equalising studies is the vowel *a* (ah). Let first a medium-clear (*semi-chiaro*) *a* (ah) be sounded. After some time let studies be made on such vowels also as are most akin to *a* (ah), and let these be practised alternately with those on *a* (ah). The object is to make the voice fit for every kind of *timbre*. We speak of clear and obscure, *chiaro* and *oscuro*. Each of these, however, admits of various shades, just as the human soul is capable of many shades of emotion. The clear *timbre* lends the voice greater brilliancy, especially in the middle register and in the first notes of the higher one. It must, however, not be exaggerated, because this makes the voice sharp and disagreeable. On the other hand, *timbro oscuro* imparts greater fulness and roundness to the voice; yet if it is overdone it renders the tone dull and close.

It will be found easy to sing the middle register and the lower notes *piano*,—that is to say, however, if one has not fallen into the bad habit of squeezing the voice, and choking. Yet most nature-taught, untutored singers are inclined to sing these very notes *forte*, precisely because they lie so conveniently and are so easy of attack. Nevertheless it is of the greatest importance in equalising studies to avoid waste of breath in this very middle register. The teacher must attend well to the exact position of the mouth and to the

purity of the vowels. Only when the middle notes are soft and sonorous, and enounced with little breath, and when the singer never wastes breath,—in other words, when he knows how to distribute his store of air uniformly over all his notes,—will the studies be successful. The expirations must therefore proceed without any forcing or puffing,—in one quiet flow. For, if such forcing were to occur in the practising, it would immediately tell on the tone; the note on which the air is thus forced would at once become prominent among the others—*i.e.*, it would sound more powerfully than the rest; it would become unequal, and immediately make itself felt to the ear as predominant and of undue effect, as we have almost invariably occasion to remark with beginners.

More difficult than in the case of the lower and middle notes, is the achievement of an entirely equable scale in the upper register; yet here also it is as necessary as it is possible. It is necessary, for, even in the upper register, only such notes meet the demands of general musical efficiency as can be started *piano;* and further, it is possible, for nature itself has bestowed upon every voice an additional scale of higher notes in the falsetto register, which are easy of attack, even with the slightest breath. It is only those who have a bad formation, and who have got into the habit of making a false start, that will not be able at once to sing high falsetto notes *piano.*

The more sonorous the chest-notes are, the more difficult it is to connect them with the falsetto. If the singer would but allow his breath always to flow equally gently, the point where the falsetto voice naturally begins would become evident. That point

will be that note which, if commenced *piano* like the lower notes, no longer sounds as a chest-note—*i.e.*, at which the same small quantity of breath is no longer able to make the tense vocal chords vibrate in their entire breadth. *Never must breath be taken on the transition to the falsetto. The notes of the chest and falsetto voice must always be blended during the same breath, neither may the position of the mouth be altered.* Professor Störk says: "The falsetto notes are the softest ones of the human voice. The laryngoscope shows that, in forming them, the vocal chords become more attenuated and elongated. Of this fact one may best convince oneself by means of the so-called 'Durch-leuchtung.' This is to say, that in allowing an intense light to fall from without on the lower part of the larynx, it is seen that light appears more and more brightly in the laryngoscopical image through the vocal chords the higher a note is produced, till ultimately but a thin gauze seems to hover over the light." If a person suffers from obesity this experiment will not succeed, hence the observation must be made with less stout individuals. In sounding falsetto notes the glottis becomes more and more contracted, and the vibrations of the vocal chords, on account of their small amplitude, do not extend so far in a lateral direction as with the chest-voice. This Professor Störk thinks is in accordance with Johann Müller's statement,—viz., that during the production of falsetto notes only the free edges of the vocal chords vibrate. For the assumption of many physiologists and specialists that the lateral portions of the vocal chords remain altogether unaffected by the vibrations is refuted by the fact, frequently observed by Professor Störk, that

any phlegm happening to lie on the chords is not removed from the edges to the ventricle and deposited there, but that, when put into motion by the vibrating of the chords, it frequently finds its way from the lateral portions to the free edges. Only when the voice is much exhausted, and the false vocal chords come to rest on the true ones, thus confining them in their motion, or where, as is the case with some singers, this latter condition regularly accompanies the singing of falsetto notes, are the lateral portion of the chords really rendered inactive. Dr Oertel examined the vocal chords under intermittent light, and, in doing so, discovered the fact that in the case of a practised singer, with a well-developed falsetto, the vocal chords vibrate in their entire breadth, not as one whole, but in such a manner that vibration-nodes, or rather sagittal node-lines, are formed.

We have observed that in falsetto notes the vocal chords do not, as is the case in chest-notes, approach one another so closely as to leave merely an extremely fine slit between them, but that there always remains a small elliptical aperture between them. The individual pulsations of air, produced in consequence of the vibration of the edges of the vocal chords, cannot accordingly take place with the same force nor with the same precision or rapidity as are insured by the accurate fitting of the vocal chords engaged in producing chest-notes. In chest-notes a very considerable tension of air is required in order to break the lock of the chords; on the other hand, only a moderate tension is needed with the slender, yielding folds of the edges of the chords in falsetto singing. High falsetto notes may, therefore, be exceedingly long sustained, owing to the narrowness of the glottis,

which is, if not relatively, yet absolutely, very great. Not so the low falsetto notes. By practice a great deal can be effected, and even the mechanism here described may, by it, be modified in the highest degree. Persons who sing falsetto a good deal, and know how to manage it so that it does not cost them any more effort than the chest-register, also acquire by practice a great many movements which seem to subvert one or the other of the rules here indicated. Thus, *e.g.*, the rapid escape of the breath may be prevented by considerably narrowing the glottis, even with the falsetto voice. By this of course the sound and power of the voice is materially altered. It becomes, from the above stated reasons, more sonorous and rich. The notes can, owing to the restrained escape of the breath, be longer sustained and produced with greater power. In falsetto-singing it is a matter of chief importance that the singer should know how to bring into full play the resonance of the cavity of the mouth. If he knows how to engage the position of the mouth in the production of tone, he will give falsetto a power resembling that of the chest-voice. A somewhat arched position of the mouth imparts greater fulness to all falsetto notes.

As already said, every singer must endeavour to blend as much as possible the qualities of the chest and falsetto registers. Ladies succeed more easily in this accomplishment than gentlemen, because of the greater smallness of the female vocal chords. According to Engel, German song cultivates with predilection the chest-voice, as it also gives preference to the expressive over the graceful and the ornamental. French song has been more bent on developing the

falsetto and the ornamental. The Italian, which stands highest in this respect, has not allowed either the one or the other to become exclusively predominant, and endeavours to give fair scope both to full power of tone and to agility and nimbleness of voice. An old adage, the author of which is unknown, has it, "*Hispanus flet, dolet Gallus, Germanus boat, Flanderus ululat, solus Italus cantat*"—*i.e.*, in singing "the Spaniard weeps, the Frenchman laments, the German roars, the Dutchman howls, the Italian alone sings." These averments were more or less correct some centuries ago; yet in our age, with training and cultivation, we find beautiful voices and good singers among all civilised peoples, although it is not to be denied that in all countries there is occasionally some roaring even now. That there has been not roaring merely, but some real singing, in Germany in our times, I may prove by mentioning the greatest singer in the smallest person—Mdlle. Henriette Sontag (afterwards Countess Rossi). The French called her "la petite Allemande," and when, on her sojourn at Paris in 1826, she one night charmed the public into the highest pitch of enthusiasm by the loveliness and sweetness of her tone, her inimitable *mezza-voce*, and particularly by her shakes, one of the audience exclaimed,—"*Il faut declarer la guerre au Roi de Prusse!*" There was a sudden silence after these words; then the enthusiast went on shouting, "Not for the Rhine! No, for Henriette Sontag!"

Neither the object of this lecture nor the time at my disposal permit me to discuss now the merits of the great singers of the different nations. Permit me, however, to pay a tribute of admiration here to one

who is truly a hero among singers, who has gone forth crowned with glory from so many a field of artistic strife, and to whom it is granted even to-day to excel in singing the praises of the greatest hero of his people.

Surely any one who heard Sims Reeves sing the "Death of Nelson" will enthusiastically remember it all his life. I feel bound to say that I cannot imagine this song rendered with higher perfection of art. Yet why praise? That would be superfluous just as the panegyric on Hercules by a Greek orator, so effectually arrested by Antalcidas the Spartan with these words, "To what purpose a panegyric on Hercules? Who ever dreamt of finding fault with him?"

The production of a correct note mainly depends on the tension of the vocal chords, which is effected by the thyroid cartilage. Even a very slight and scarcely perceptible motion of this part of the larynx alters the tension, and thereby the vibration, of the chords, and consequently the note produced. If one wishes to sustain a note at a uniform pitch and strength, the tension also must remain uniformly the same—*i.e.*, the thyroid cartilage must not, by a hairbreadth, change its position. If it moves the least backwards or upwards, so that the tension of the vocal chords is lessened, the note immediately goes down. If the motion is one the least in a forward or downward direction, so that the tension becomes greater, the note, too, rises immediately. In both cases the singer ceases to sing true.

The singer can by practice acquire command over the muscles concerned, by which he is enabled to maintain the vocal chords at an equal tension. For this purpose he must diligently and frequently sustain

one and the same note as long as possible, and with equal strength and as small an expenditure of breath as possible. The here-mentioned contracting or equalising action of the muscles takes place wholly in consequence of our imagining the definite note we intend to sing, the nerves being directed by the brain and acting on the muscles with lightning speed. This is the mental faculty for tone, which we premise in every singer. The thyroid cartilage does not act exclusively in the production of various notes; it may also somewhat alter its position even while the note is sounding, thus lessening the tension a little without lowering the note, premising that an increased breath makes up for what the note would lose in height in consequence of the relaxed tension. A note accordingly gains in strength by stronger breathing; yet it does not become higher, but remains the same as to pitch, if one allows the tension of the vocal chords to decrease in proportion to the increasing strength of the breath. Both, therefore, the strength of breath and the tension of the vocal chords stand in an inverse ratio. In a crescendo the breath increases whilst the tension of the chords is relaxed at an equal rate: both, however, must be done quite steadily—that is to say, without break or jump; and particular care is to be taken lest the note become higher, which means, lest it cease to be true, which would be the consequence of the vocal chords not being properly relaxed, and of a want of accurately imagining the note during its entire length from the beginning to the end.

In *piano-singing* we have the minimum of breath with the maximum tension of the chords. We have already mentioned that with chest-notes the vocal

chords vibrate in their entire breadth, but that only their inner edges do so in falsetto notes. In taking, then, the lowest notes of the falsetto register with a strong breath, some of these will turn out to be chest-voice; but if we take these same notes with half the breath, we have the mixed voice (*voix mixte*).

The *voix mixte* is a compound sound of chest and *falsetto* voice. Panseron says: "*La voix mixte doit être formée d'une portion de la voix de poitrine et d'une autre de la voix de tête. Elle a plus de la force que cette dernière et par elle il est plus facile d'egaliser les deux registres. Adolphe Nourrit s'en servait beaucoup.*" In the *voix mixte*, one of the vocal chords vibrates in its entire breadth, whilst of the other only the edge vibrates—*i.e.*, since there exists the possibility and also the faculty of keeping the tension-muscles in action on the one chord, but of inhibiting their function with the other, and thus of combining both actions, we can sound on the one chord chest-voice, and at the same time falsetto on the other. One must seek by practice to render the involuntary action a voluntary one, and to control it completely by degrees. All the studies will, according to my conviction, have the desired result only when the teacher himself sings to the pupil the different *timbres* and shades of tone; for, after all, the art of singing cannot be acquired without *viva voce* tuition, and a living intercommunion between master and pupil.

While we can see with our eyes and handle at will most other instruments, the organ of song and its internal functions are withdrawn from ocular observation, and we can fully acquire beauty of tone in sing-

ing only by the cultivation of the ear. The tone must be received by the mind and produced by the mind. The master must be able to let his pupils hear beauty and nobleness of tone, and to awaken their minds to their true appreciation; and further, he must determine the quality of a pupil's tone in accordance with the whole compass of his voice, and with his individuality, in a different way with each different individual. This is a task which will be an impossible one, and ever remain a mystery, for him who has not himself made a study of the art of singing. There is no definition in words of a sound. It must be heard to be understood, and it is only by close listening that it can be reproduced. The beautiful and noble tone can as little be described as beautiful colour.

Aristotle declined the answer to the question, "What is beauty?" He simply declared it inadmissible. "Leave it to the blind to put such a question." How, then, is a teacher,—and were he all in one a writer on and composer of music, physiologist, and anatomist,—how is he to demonstrate beauty of tone? He must be able to produce it, and only when the pupil hears can he also conceive and repeat it.

I do not, however, mean to say that every pupil will succeed at once in forming a noble, beautiful tone on hearing it; but if he has talent he must in the end be able, by hearing and *imitating*, to sing and to judge of a noble tone by himself—for good models support every art. And here I may relate another little anecdote. The enviers of Guido Reni one day came to his studio asking him to show them his model, which they were sure he only kept hidden from the view of his colleagues. He indeed had models after

which he painted, yet he went and fetched a common fellow up from the streets; and after he had drawn a figure of excelling beauty of movement and expression, his rivals conceived that not the model alone but the talent of the artist determined the beauty of the work.

Chest and falsetto notes require to be practised both in the *timbre-clair* and in the *timbre-sombre*, and daily and alternately. Very appropriately Benelli says: "*La voce e simile ad uno stromento che non continuamente adoperato perde ogni suo pregio.*" "Every voice resembles an instrument which loses all its value if not in constant use."

The *voix mixte* is of most effect with the bass in the notes from c' to e' flat; with the baritone, from d' to f' sharp; with the tenor, from e' flat to a': and this *timbre* is, as we saw, the one that blends the power of the chest register with the softness of the falsetto. Just, then, as a painter, in order to give life to his pictures, employs bright, dark, and mixed tints, so also must the singer in his renderings make use sometimes of the clear and sometimes of the sombre and mixed *timbres* or shades of the voice in order to give to his performances characteristic and changing expression. The thoughtful singer (and of him only I wish to speak, seeing that in the higher sense a thoughtless person cannot be called a singer) will in singing be led to perceive that the limits of the chest and falsetto voice may, and often *must*, be overstepped. Many sopranos believe that they must sing all notes beyond d'' in the falsetto; tenors hold the same regarding the notes beyond e'; baritones, those beyond d'; and basses, those beyond c'. This, as we shall see, is altogether erroneous.

If the last note of a baritone's chest-voice be *d'*, the next following higher semitone, *e'* flat, would, taken in the falsetto, have to be sung *piano;* whilst if the character of the piece to be performed demands that that note should be taken at a medium strength—*i.e.*, *mezzo-forte*—the singer is compelled to employ *voix mixte.* In the highest dramatic pathos, however, he must take that note *forte,* and hence is compelled to employ chest-voice still. If he were to go *higher yet* with the chest-voice—viz., *e' f'*—these notes would sound sharp and piercing in the *forte;* and to avoid this, he again must employ *voix mixte,* or else he must find the requisite position of the mouth, and in fact pass over from the oval or elongated round position to one more rounded and arched, and thus give the vowels the sombre timbre. By a suitable distribution of the breath, the singer has it in his power to extend the vibration of the edges of the vocal chords to a broader portion of them. The vocal chords not being at the same high tension as with notes of the chest register, it depends on the current of air how broad the vibrating edge of the chords sounding the note should become. If we give greater breadth to the vibrating edge, the sound approaches that of the chest-voice ; but if the vocal chords are strained beyond the limit of the chest register, and often further, yet we only produce a forced shrieking sound, which sooner or later must destroy any voice. The quality of the highest notes must necessarily depend in very great measure on the singer's feeling and sympathetic animation. Earnest will and an intense effort of our mental energies control the tension of the vocal chords ; and thus we are enabled

to produce notes of great beauty, even in the highest register.

Singing is, in fact, an unconscious or rather intuitive emanation of our feeling or fancy. Just as we learn to walk, to eat, and to drink without thinking of the muscular apparatus we put into action in doing these things, we talk and we sing as our feeling prompts us, without knowing how we do it.

The child, in imitating the words he hears from those around him, does not try in any scientific manner to arrange the organs of speech according to the positions required for those words; but he seeks to obtain the intended acoustic effects—*i.e.*, he practises until the words which he produces are more or less like those used by grown-up persons. The positions assumed by the tongue, the lips, the *velum palati*, &c., reach his consciousness with as little distinctness as in the case of a grown-up person, whose ear, rather than any sense of the wrongly executed movements of the organs, calls attention to a word wrongly uttered by himself. Almost the same thing occurs at a later period of life during the acquisition of the art of singing, although the position of the mouth and of the tongue requires to be seen, as I have stated more particularly in my first as well as in to-day's lecture. The motions of the larynx are, however, unknown to the singer, who has but an obscure sense of the mechanism of the vocal organs. The will and the ear put everything into the right position.

Persons whose hearing is impaired find it of great advantage to look attentively at the mouth of the person speaking to them. The eye then makes up in

part for the deficiency of the ear. Such persons catch the words, so to speak, with their eyes.

Kempelen in his 'Mechanismus der menschlichen Sprache' (Vienna, 1791), relates the following case: "One of my friends has by long intercourse become so familiar with the motions of my mouth, that I can, when sitting opposite him at a dinner-table, tell him intelligibly, and in different languages, anything I choose, without any of the company hearing a syllable, or even a breath. We often did this for our amusement."

As our sense becomes more refined, we perfect our singing purely by the suggestions of our feelings. The singer who only cultivates his voice, and does not equally refine his heart and mind, will never become eminent in his art. And if we, as is common enough, especially among lyrical or emotional tenors, deceive ourselves in imagining that we sing much more beautifully than is actually the case, the impression which we make upon others will speedily disabuse us of our mistake. Either friends will tell us the plain truth, or the audience will signify to us by their silence that our performance has not particularly edified them—or we are hissed, as is the fashion in fair Italy. I do not mean by this to say that every audience is wholly composed of judges of the art; yet if a singer does not meet with approval, the cause in most cases must be found in the style of his performance. A certain something that lives in every true artist tells on his hearers. This something cannot be defined. I would call it the divine spark, without which the singer leaves every audience cold.

Artists who are not applauded, forthwith declare

the public to be unintelligent, unsympathetic, unmusical, &c.

At any rate, however, the singer ought not to lose courage at once when his performances are not received with marked applause. Surely applause is as necessary for the singer as is bread for the ordinary mortal. Yet he must have perseverance, and endeavour to perfect himself. He must elevate his mind by the sublime works of the classical writers; he must draw inspiration from the greatness of their subjects, and enrich himself with the contemplation of the most worthy; he must feed his intellect and energise his soul. Finally, though he must go and hear great and recognised artists, he must preserve a certain originality. Then if, after a certain time, he sees that his performances remain without encouragement, he may leave the public platform to those chosen for it, and devote himself to other avocations. For neither listening to the most distinguished singers, nor the best instruction, nor rules and manuals of the art, avail anything where nature does not give her *imprimatur*.

In our times some masters, who are often not singers by profession, would seek the preservation of the art in Laryngoscopy and Anatomy. The consequence is, that their pupils turn out bad anatomists and still worse singers.

An old Roman once said he wished he were of glass, so that his fellow-citizens might always be able to see to the bottom of his heart. No laryngoscopical professor of singing has as yet repeated that wish of this worthy Roman. If the vocal organism in all its parts were quite transparent and open to our inspection as a

clockwork invented by man, and if we had before us in their full working order all the small muscles operating in it, with all the nervous ramifications, then, perhaps, the minute anatomical study of the vocal organs might afford to us practical advantage. As to the way, for instance, in which the minute muscles of the larynx take their part in the production of low and high notes, there still prevail diverse and often contradictory views. From all the observations made on this point, it is clear, however, that there occur manifold individual differences, which are the greater according as one has to do with the singer trained in a good school, or with one nature-taught. We are always brought back to refined artistic feeling, and to the absolute and direct influence it exercises on the muscles of the body through the magic power of will: this I have called singing with one's *soul*, the essential of essentials.

Professor Engel justly remarks, though the anatomist calculate to the thousandth part of a millimetre to what length for each individual note the vocal chords must be stretched, what would it avail? No mortal could control such niceties. He must *imagine* the note with absolute precision, and it is the precision of this imagination which effects correct tension of the vocal chords in a way unknown to us.

Though a person who is well acquainted with the anatomy and physiology of the vocal organs, and with the results of laryngoscopy, may find that his knowledge enables him to make a somewhat more intelligent use of his voice, and that he imagines himself to be directly conscious of the muscular actions which he knows to be taking place, yet in practice the study of

laryngoscopy avails little to a person who is studying the art of singing. It suffices for him to examine once, and once for all, the action of the vocal organs during singing by means of the laryngoscope. To do so gives an idea of the subject, and, above all, enables the pupil to understand what is the real strength of the vocal organs, and what an amount of discretion is required in their use.

Laryngoscopy is of value for the study of singing only when the master is himself a practical and expert singer; otherwise it can do little to advance the art, however justly it may be numbered amongst the most beneficial discoveries of medical science—and I am glad to take this opportunity of bringing to mind the fact, that the first to carry out laryngoscopical examination in the true sense of the word was an Edinburgh physician. He did so in 1840; his name was A. Warden. Regarding him (Dr A. Warden) Professor Störk records that he successfully employed two prisms of flint glass in examining the tympanum, the cavity of the throat, the Eustachian tubes, and lastly the larynx. One of these prisms was employed in reflecting the light of an Argand lamp down the larynx—the other, fastened to a support and warmed, being introduced into the pharynx. In this way Dr Warden got sight of the epiglottis, the arytænoid cartilages, and the glottis. It was as recently as 1848 that the celebrated professor of singing, Signor Garcia, examined his own vocal chords by introducing a small warmed mirror with a long handle into the posterior part of the cavity of the mouth, whilst conveying sunlight by means of a second mirror to that place in the mouth.

Subsequently, Professors Türck and Czermak have engaged very extensively in laryngoscopical investigations in the Royal Infirmary at Vienna; and it was Professor Czermak who first fully recognised the importance and comprehensive usefulness of laryngoscopy as a new diagnostic aid—and in his enthusiasm about it, he actively exerted himself in making it most widely known and properly appreciated. Yet, however much has been written in scientific publications on the larynx and the adjacent muscles during the last quarter of a century, we are still far from relying everywhere on fully established results. Many things still remain to be explored, many things are disputed, and here the theories propounded by the older physiologists as definitely proved, have been in recent times again called into question. We are therefore more or less left to hypothesis; and to a great portion of the treatises on the functions of the larynx in singing, Lessing's words may be applied, when he remarked on a new book submitted to his criticism: "It contains much that is new and good; pity only the good is not new, and the new not good." Let physiologists, anatomists, and professors of singing continue their investigations until they can finally dispose of the obscure points of inquiry, if these can be settled at all. The practical teacher of singing, on the other hand, must not puzzle his pupils with these investigations, and will do well to treat singing as an art, but not as the "black art." Much can be acquired by study, but Nature must grant the greater and best part—voice, ear, and feeling.

Kant's assertion that man is nothing save what education makes of him, is, I believe, to be taken

somewhat discreetly, for what is not in man from the outset he cannot develop and expand, and he cannot either make himself or have himself *made* anything great if Nature had not designed him for it.

Skartazzini says very appropriately about Dante's intellectual development: "The very term development premises faculties to be developed."

Again I repeat, let the singer not brood too much over anatomical and laryngoscopical investigations, and vex his brains with questions which, if he be not a physician, he will but in very rare cases thoroughly understand. To such brooders Plato's words may be applied: "Ignorance is better than much knowledge accumulated in the mind in a confused heap."

Singing proper—I mean the normal processes of singing—we cannot watch even with the best laryngoscope in the larynx. These examinations are confined only to the manner in which a few vowels are produced, and even these few vowels are produced under conditions more or less unnatural. One must in the first place put out the tongue as far as possible, and hold it fast with the fingers; and secondly, give the head a strained bend backwards. But even if this were not the case, there always remains the awkwardness of a foreign body being inserted in the cavity of the mouth. Professor Brücke, too, observes: "Unfortunately, one can with the laryngoscope examine only two of the vowels, *a* (ah) and its neighbour *o* (oh); the vowels *i* (ee), clear *e* (ā), *ü* (French), clear *o* (oh), and *u* (oo), cannot, owing to the position which the cavity of the mouth assumes in producing them. On the one hand, one is hindered from seeing rightly; on the other hand, the danger always exists that the indi-

vidual under examination, in trying a vowel which he naturally cannot produce with the mouth wide open, performs, in order to get at that vowel at all, something with his larynx which he would not have had to do with the same vowel if no constraint had been imposed upon him with respect to the position of the cavity of his mouth.

And now back to our principal theme. The registers must borrow from each other their advantages and interchange their peculiar qualities. Thus the chest-voice must endeavour to acquire some of the clearness, brightness, and flexibility of the falsetto, and the latter as much as possible the brilliancy and richness of the chest-voice. The very object in view is a blended tone over the whole compass of the voice. None of the registers is to obtain predominance; but if this is nevertheless the case, relative preference should be given to a voice that retains more of the chest tone over one that has throughout assumed the character of the falsetto. One often observes in soprano voices one or two more powerful notes in the lower portion of their scale, succeeded immediately by quite faint and feeble notes, whilst the voice gains in tone again in the two-stroked octave, in the notes above treble *c″*

In order, then, to establish equality over the whole compass of the voice, it is advisable to write out chord figures in which the feeble notes are connected with the sonorous ones. These latter more powerful notes are then to be sung more *piano*—that is, *mezzo-forte*—and combined with the fainter notes, which one must endeavour to sing more powerfully, without, however, attacking them otherwise than gently. By

consistently practising such combination figures the feeble notes are sure to gain more strength, and in course of time the whole voice will become better equalised. It is therefore altogether wrong to make pupils sing their voice exercises throughout with a full voice and *forte*, as it is wrong, on the other hand, to make the pupil only sigh out his exercises. A powerful bass voice would lose all sonorousness and brilliancy by constant *piano* singing, in the same manner as a delicate soprano would by continually singing *forte* lose the voice altogether. Constant changes, therefore, are to be made of *piano*, *mezzo-forte*, and *forte*, the latter to be least of all predominant in the exercise. Old Herr Wieck, the father of Clara Schumann, observes: "My pupils sing their studies with the half, in order to sing with the full voice. It is by the *piano* that the *forte* becomes beautiful." I, for my part, think that the only correct and true method is not to put any constraint on the individual voice, but in its treatment to follow implicitly one's own ear and the natural feeling of the pupil. The most important point is not how many registers of voice may be supposed to exist, but properly to distinguish those which one really has before one, and so treat them correctly.

In my second Lecture, in which I proved that there is no head-voice, I mentioned the fact that beginners who cannot control their breath are apt to complain of headache when they sing high notes. I can explain this to myself only by assuming that with the lowered soft palate the air is forced from the lungs through the posterior *nares*. Notes thus produced ought certainly to be called, not head-notes, but notes of dis-

tress. Upon the whole, no one who values his voice ought to sing music written in too high a key. As soon as one feels the approach of fatigue, one must stop singing; and in spite of all *encores* or requests from fair lips, one must never allow positive fatigue to set in. Professor Mandl refers to the fact that a certain quantity of mechanical energy is used by walking about for a considerable time—that is, by exercising the organs of motion. By weighing a person before and after a prolonged exertion of the muscles, one can ascertain the fact that he has lost weight through that exertion. Carpenter says in his 'Physiology:' "We have reason for believing that the waste and decomposition of the substance of the muscles stand in an exact proportion to the degree of their exertion." The same applies to the nervous system. The brain of an adult contains but $1\frac{1}{2}$ per cent of phosphorus, and it has been found that after great mental exertion phosphates are secreted, and pass through the kidneys, this being specially well marked in cases of inflammation of the brain. When sound is to be produced for too long a period, the mucous membranes of the larynx and the pharynx become congested with blood; the natural secretions cease; dryness, thirst, an unhealthy sense of burning, and great irritation are produced, succeeded by thorough fatigue; the voice loses its pure tone and becomes feeble; the muscles of the chest suffer pain at each inhalation. The fact is, one unduly affects the whole body by taxing the vocal organs so far as to produce these symptoms. Exceeding the means at one's disposal in this manner is always avenged in the most distressing way. The tissues concerned are affected, and, as Professor Mandl expresses it very

tersely, "the vocal organ becomes bankrupt." How long at a time one may sing is indeed difficult to determine. It depends on the constitution in general, as well as on conditions of the vocal organs. The old (Bernacchi) school of Bologna gives the following time-table for singers :—

"After breakfast, Singing scales 5 mins. and pause 15 mins.
„ 10 „ „ 15 „
Solfeggios 15 „ „ 30 „
„ 30 „ and then a walk in the open air.

* Two hours after dinner (which is early, after Italian fashion)
Singing scales 10 mins. and pause 10 mins.
Solfeggios 10 „ „ 10 „
„ 10 „ „ 10 „
„ 30 „ and then a walk in the open air."

The Bernacchi school adds besides: A singer who is in earnest with his training, will with these directions find time enough for the acquiring of musical and other knowledge; only he is advised not to do any work demanding great muscular exertion, and as little may he sit long over the desk or run hard. Nor is he permitted to carry on the playing of any stringed instrument, and not even of the piano to such an extent as to make a special thorough study of it; for his whole frame exerts itself through the singing and the musical studies requisite for it to such a degree, that he is fit for no additional effort.

Angeloni Bontempi records the following on the

* I would advise singers to abstain from singing for three hours after dinner, and to air the lungs in a pure atmosphere, seeing that it is after the principal meal that the greatest amount of carbonic acid is generated.

form of studies of the Papal singing-school at Rome: "The pupils of the singing-school of Rome were obliged to practise for one hour daily intervals of special difficulty, in order to get facility of execution; for another hour they were employed in practising shakes; a third they spent in singing rapid passages; a fourth in reading the literature; and finally, one in the cultivation of the taste and expression. All this they did in the presence of the Professor, who also saw that they sang before a looking-glass, in order to learn to avoid every kind of grimace or unpleasant motion of the muscles, be it wrinkling of the brow, or the winking of the eyelids, or the distortion of the mouth. All this was but the forenoon's occupation. In the afternoon they devoted half an hour to the theory of sound and acoustics, another to playing counterpoint; a whole hour they spent in the learning of the rules which the master gave them, for their compositions, and on their application in writing; then another hour in reading; and the rest of the day was occupied in playing the piano, composing psalms, *motetti*, songs, or any other work suited to the capacity of the pupil. These were the ordinary exercises on days when the pupils were not allowed to leave the school. If, on the other hand, they had permission to take a walk, they often went through the Porta Angelica, not far from Monte Mario, in order to sing against the echo, and to become acquainted with their own failings through listening to its answers. At other times they were either employed in singing in the great public performances in the churches, or they were permitted to attend these in order to hear the many great masters in their art who were flourish-

ing under the reign of Pope Urban VIII. (1624-1644)."

If this statement of Bontempi is correct throughout, I must confess that I find that division of studies somewhat hard for singers; and yet we know, on the other hand, that the singers of those times were able, up to their old age, to excite their hearers to admiration by their perfect *technique*, the richness and flexibility of their voices, and the vigour and duration of their breathing. The main reason, however, for these great results is, according to my opinion, the caution with which the exercises and songs of the school of Rome were always kept within the bounds of the most natural and easy register. I mention here only the most classical of all composers of sacred music, Palestrina. We find in his works that voices did not go beyond the compass of the Tenth (Decima). The high treble went from *e'* to *g''*, which was sufficient for the sacred and choral compositions of those times, and explains why the voices then retained so long their freshness. In our days, on the other hand, the modern sacred songs can scarcely be executed within the compass of two octaves, not to mention our operas and oratorios; and therefore it is of much importance to develop the falsetto of every voice, and to do so cautiously and by degrees: for the singer who takes from the first music too high for his voice, in order, as he imagines, to obtain command of the highest notes, will lose these for ever. He who works up to them slowly and by degrees, will reach the desired end. Those who have difficulty with high notes, will reach them only with a softly breathed, not with a real aspirated *h*. The firm and decided attack is to be em-

ployed only with the chest-voice; but even then the notes must never be forced, for notes forced out with vehemence are never beautiful. To obtain beauty we require a very easy capacity of voice, which can start the notes without an effort. Singing in which there is to be true feeling, ever demands for its basis a correctly and beautifully cultivated tone. The most powerful accents in dramatic singing do not allow the employment of a falsetto; they must be assigned to the chest-voice. The softest *cantilenas* in a high scale are the proper subjects for falsetto.

Although we may not always employ the falsetto, we must yet constantly practise and cultivate it; for there is nothing so saving, refining, and strengthening for the chest-voice—nothing makes it so capable of extending its compass, as the constant and well-directed cultivation of the falsetto voice. Professor Engel remarks: "The method of singing of former times was confined within much more narrow limits, both as to compass and power of the voice, and to *timbre*. For this reason it attained much more readily to great precision, and could be much more safely relied upon." From the realistic and dramatic style of singing that prevails in our days, it undoubtedly arises that the art of equal and perfect attack of the voice becomes more and more rare, and that, where it still exists, it is purchased by the renunciation of the still recognised standard conditions of a really animating execution. A short time ago I had an opportunity of hearing some of the so-called dramatic singers; and I must confess that I heard but little true singing. In the recitatives I could indeed recognise their good intentions, yet what I really heard was but an indis-

tinct declamation. The great Cæsar is said to have told an orator, "When you sing, the singing is bad; and when you speak, it is a sing-song." Might one not apply this dictum to many of the dramatic singers of our times?

There is, in our days, everywhere a want of distinguished dramatic singers, and the few that exist do not satisfy the demand; so that the managers of the operatic stage are not altogether in the wrong when they say they must cultivate, in preference to the *opera seria*, the *opera buffa* and the *opera leggiera* or *semi seria*. Unfortunately, in these days most dramatic airs are written for the highest scales, and besides, are weighed down by over-instrumentation.

I certainly should recommend our composers to take a look at the larynx before they write an opera, when they would find that the arytænoid and cuneiform cartilages are not made of steel, nor the thyroid and cricoid cartilages, which play so important a part in the production of the voice, of iron; and that the laryngeal pyramids are not the same as the stone sepulchres of Cheops and Cephron, but that by over-exertion they would soon enough become the sepulchres of the voice. They will also see that the vocal chords may not be stretched too hard between the open cartilages to which they are attached, for these chords that are sounding there are neither of steel nor of catgut. Certainly every composer ought to make very exact singing-studies, and to familiarise himself most thoroughly with the character of each class of voice, so that he may know how to write for each in the way most in harmony with its nature, and may know how the greatest effects may be produced without over-straining.

The high soprano, which possesses its greatest strength in the double-stroked octave—that is, in the octave lying immediately above treble *c″*, —would rarely produce dramatic effects in the one-stroked octave—that is, in the octave immediately below treble *c″*—or in the three-stroked octave—that is, in notes lying more than an octave above it. The deep bass voice, whose range of greatest power is in the notes from *a* to *d′*, will only bray if you make him sing *f′* sharp, and *C* or *D* below would be but a grunt. Father Haydn for a long time acted as accompanist to the celebrated Italian professor of singing, Porpora; nay, he even did the service of a valet to him—only in order to become more thoroughly acquainted with the Italian method of singing. But then, we see how naturally and effectively he learned to write for each voice; and that is also the reason that we hear Haydn's airs everywhere. There is, to be sure, not a town in Europe, however tiny be the little black speck it occupies on the map, in which Haydn's music is not cultivated and cherished; and certainly Haydn knew well what he said, when Mozart cried out to the sexagenarian Great Master on his departure for London, "Papa Haydn, you have no manners, and have not sufficient command of languages." "Oh," returned Haydn, "my language is understood all over the world."

In their natural state the different classes of voice bordering on each other—the *basso-profondo*, *basso-parlante*, *basso-baritono*, *tenore eroico di forza*, *tenore lirico d'agilita*, &c.—are to be distinguished from one another, less by their compass than by the character of their tone and the *timbre* of their vowels. The bass has for the greater part chest-notes; its tone is

pithy and wide-ranging, the latter especially when the notes are not of the *sombre* timbre—in other words, when the notes are not close and compressed, but formed in the *chiaroscuro* timbre; yet it is a matter of course that the basso, to be a vocal artist, must also develop his falsetto well.

The world-renowned bassos Lablache, Tamburini, and Stockhausen used the falsetto to the greatest effect, and everywhere received brilliant ovations. The tenor possesses chest and falsetto notes of a soft, sympathetically inspired tone, which in its manifold shades is capable of expressing true sentiment. On the stage the tenor is generally the hero, the lover and beloved. Whilst the basso is never blessed with the love of the fair, he blesses or curses them or others as father or as devil, as cardinal, grand inquisitor, &c. The alto voice has many features in common with the basso; its notes also belong chiefly to the chest register. Whilst pithy and full as those of the bass voice, the notes of the alto are at the same time of feminine gentleness, tender and grateful to the hearer. It is to be regretted that the alto voice should still be treated as a step-child by composers, especially by those of operas. The alto voice is less suited for the expression of impassioned feeling than for that of a deep and latent fervour. Like the tenor, the soprano too has at its disposal, besides the chest-notes, those of the falsetto. The soprano is also more versatile, and capable of the most manifold expressions and shades. Its notes are in general rather soft, like those of the alto, but of youthful freshness and brilliancy, like those of the tenor. As a matter of course, sopranos must not be too old. As has already been remarked, voices must

be classified, not according to their compass, but solely according to the *timbre*. Thus, undeveloped soprano voices often do not reach so high as intelligently trained alto voices; and although an alto and a soprano sung one and the same note, it would in the two cases be of different *timbre:* and even if this is not always felt with any individual note, let them but sing both the same scale, and the difference of the tone and *timbre* will undeniably appear. As a further characteristic of these two classes of voices, we find their greater or lesser capability of rapid movements.

Powerful voices—as, for instance, bass voices—are less capable of rapid motion, and will rarely be found to have a beautiful *piano*. The delicate voices of ladies which demand a comparatively slight flow of air—since their vocal chords are more delicate—will move with greater facility, and even with little study develop a beautiful *piano*. Unintelligent bass-singers very frequently fall into the mistake of shouting, especially in the higher notes. The worthy old Johann Hiller observes, with regard to the habit of such bassos of forcing out these notes, that one thinks one hears Homer's wounded Mars, rather than a singer who has any respect for the ear of his hearers. Their tone in the high notes is as the roar of thunder, and in the lower ones it resembles the creaking of a cart-wheel. The higher the notes progress, the more they must be moderated; and upon the whole, one should not sing higher than one can do without straining. The bass voice's greatest difficulty lies in singing the highest notes softly and gently. This is because with the bass voices we find the largest and best developed larynges and the broadest vocal chords. With the

baritone the vocal chords are not so broad as with the bass. The larynx of the tenor, with its small and delicately constructed vocal chords, approaches the female larynx. In soprano and alto we meet with the same difference with regard to the length and breadth of the vocal chords as exists between tenors and basses. The soprano has the smallest larynx.

Most voices are ruined through being wrongly adjudged or classified. A. Panseron says—

"It is difficult to decide to what classes the different species of voices belong; but by carefully studying the qualities of the chest, middle or medium and *head* (falsetto) voices, long experience will enable one to judge on once hearing a singer. Still, in order to characterise the voice of a pupil with certainty, it should be heard several times.

"The fulness of tone and the extent of the chest-notes serve as a guide. Such voices sometimes possess an extraordinary range of upper notes, of which Madame Alboni is an example, who combines the contralto with the mezzo-soprano, and whose extensive range of head notes admits of her singing soprano. Martin, a French singer of famous memory, was a baritone: with his range of upper and lower notes, and his powerful and fine falsetto voice, he sang equally baritone and tenor."

Examples are sometimes exceptions,—hence these varieties in voices cause sopranos to be confounded with mezzo-sopranos, mezzo-sopranos with contraltos, tenors with baritones, and baritones with basses.

If the singer feel an unnatural pressure in the throat, if he require to clear it frequently, if the windpipe become dry, then he is perceiving the first indication of a false treatment.

Distortion of the muscles of the face, upturning of the eyes, wrinkling of the brow, shifting from side to side of the lips and the under jaw, drawing up of the shoulders, and general constraint of the body, arise chiefly from unmethodical singing of high notes, in consequence of the singer's part lying too high for his voice, of mismanagement of the breath, and of using the vocal organs in an unnatural way.

The mistakes and defects here enumerated are unavoidably accompanied by the great evil of singing untrue, with regard to which it ought to be considered that, unfortunately, we are not in a position to compensate for the mischief done by a few wrong notes, by the true ones that are left. Here is no reckoning overhead, and there is, for instance, in an air of *fifty true* and *ten wrong* notes, not a balance of forty true ones, but a total of *sixty* bad ones.

And now, lest you apply the poet's words, "All theory is grey, but green the tree of life," to this effort of mine, I would ask you to follow me for a few minutes to "La Regina dell' Adriatico"—beautiful Venice. It was there that I lately had an opportunity of hearing, in the Theatre Malibran, the celebrated contralto, Signora Biancollini, as Romeo in Bellini's "Montecchi e Capuleti."

This opera is already considered out of date, though, be it observed, quite unjustly, and yet I must confess that I was charmed, nay, occasionally even enraptured, by the beautiful *cantilene* in some of the airs, and above all, by the artistic perfection of Signora Biancollini's execution, and the warmth and geniality of her thrilling tone.

I value most highly the earnestness and depth of

German music, as I do all other good music, whatever country it may come from; but, as a singer, I shall never cease to cultivate, in particular, the Italian. For singers Bellini will always remain a good study. However little Bellini seemed to have been made for symphonic treatment of the orchestra, or of sufficient breadth of musical style for the expression of progressing dramatic situations, he draws generously from the depth of his soul whenever he is to lend to words the telling note. One feels that these songs come from a true soul full of love and longing.

"To invent telling melodies," observes Ferdinand Hiller, "is far from being everybody's forte." It is true Bellini's operatic airs are wanting in breadth and pathetic power, yet I do not despise, after profound and majestic Joh. Seb. Bach, Handel, and Beethoven, the lighter charms of Rossini and of Bellini, premised however, that they are interpreted by fit singers. Such a one was Rubini in his time.

"If one," says Hiller, "has not heard Rubini himself in the parts written for him, one cannot comprehend the degree of rapture to which Bellini's music could inspire an audience." Rubini possessed the most extraordinary tenor, and the extent to which it was cultivated made him quite a phenomenon. Whilst his chest-notes were the richest, and, at the same time, so to speak, most softly veiled, his falsetto notes were absolutely of overpowering beauty, and he knew how to use them with equal power and ease, up to the two-stroked *f* of the soprano—that is, to

The sonorousness of his voice, combined with his

unerring precision in attacking the notes, thrilled all hearts. To this must be added a dexterity of execution and an agility in which he equalled the most famous instrumentalist; further, the most distinct pronunciation; and, above all, a truly electrifying capability of expressing every shade of feeling that may agitate a lover's breast. There was the sweet sigh of pure devotion, despairing and menacing jealousy, the distress of the forsaken, and the blissful exaltation of the happy; and I believe he could have made all these immutable themes of the loving heart tell on an audience in singing the simple scale.

German singers, and such too as have studied in Italy, often speak depreciatingly of Italian music—those especially who cannot sing it. To quote Tosi's excellent remark, "Let the student always be in search of the best, and adopt it where it is to be found, without asking whether he meets it in the style that was in fashion fifteen or twenty years ago, or in that of most recent date. The good as well as the bad occurs in all ages if one but knows how to seek, to discern, and to profit by it." *I believe that Germans and Italians have constantly to learn from, and to complement, each other.* "There is no patriotic science or art," says Goethe; "both, like everything else lofty and great, are the common property of the *whole world*, and can be promoted only through the universal and free reciprocal action of all living at the same time, and with constant regard to what has been recorded and left to us by our forerunners."

To return to our *prima donna*, Signora Biancollini, she has an excellent school, and the compass of a

soprano. I heard her softly and richly attack the two-stroked *a* — nay, even the two-stroked *b* flat — the latter in a *cadenza*. The *b″* flat was of rare beauty, and yet she is not a soprano, since the notes in which her singing is of the greatest effect, and which are naturally most convenient for her, may be heard more in the lower and middle scales. Besides, she is careful in managing her high register; and if, with her dramatic fire, she did not know how to treat her magnificent voice, she would certainly have lost it long ago. In her *piano* singing I was always struck with a certain gentle tightening of her under lip. This feature is of particular importance in large halls, because by it the sound of the voice is carried to the greatest distance. The smiling position of the mouth prescribed by the Italian school has a similar object in view. Singers who cover their teeth with their lips generally produce only a close and dull tone. If, on the other hand, the lips are in the proper position, keeping the edge of the teeth free, so that the jet of tone is not intercepted by the thick, fleshy part of the lips, they will allow the tone a wider range at the distance, and it will, by the free contact with the teeth, acquire a certain metallic ring. Even in expressing the highest passion she never failed in the greatest distinctness of pronunciation, and appeared always to act up to the maxim, that the acting artist must not himself be too much agitated if he wishes to move his hearers. Signora Biancollini is said to have seen half a century, and her notes are still ever fresh, full, and soft.

Science has not yet taught us how to prevent our growing old, although Voigt would prove that, thanks to science, human life has in our time been prolonged by some ten years.

With age, it may be, wine improves; not so the voice. An old larynx, however carefully saved and artistically treated, loses its sonorousness with the threescore and ten, when the entire constitution begins to fail. Yet even young vocal chords of thirty may be quickly ruined by false treatment. Merkel, in his 'Physiology,' says—"When the vocal chords have become weak and dull with age or protracted exertion, so that, in attacking a note *piano*, they form not a linear, but a lanceolate glottis, the jet of air passing through it has not tension enough to make the vocal chords vibrate with sufficient amplitude. Besides, there escapes a certain quantity of waste air —that is, air not spent in producing vibrations—with a noise that combines with the sound of the vocal vibrations, and makes the tone impure and hazy. The vowels are not sonorous enough, and more or less exhibit the qualities usually called hoarseness." The same may be observed with young singers when they have over-fatigued their vocal organs.

I wish to add a few remarks on the classification of voices. The teacher of singing must, as I have already mentioned, classify the voice according to the character of its tone or the *timbre*. The lower the voice is the more sombre it will enunciate the vowels; the higher it is, the clearer will the vowels sound. But if, with some voices, owing to their *timbre* not being pronounced enough, one is in uncertainty as to the class to which they belong, one must train them for

some time in the middle register, in order to bring out their character, then make them sing the higher notes *piano*, and one will by this means discover the register most convenient to them, and know how to proceed further in the treatment of the voice. Some masters attach most value to the strength of the voice; but, however important for the stage or the concert-hall, this is but a one-sided advantage. Strength or sonorousness of voice is of real value only when it appears in the highest crescendo of a note originally taken *piano;* for motion is the essential element in music, and therefore the tone, to be beautiful, requires to possess motion and development. If, then, one attacks the notes merely vigorously, and sings always *forte*, a real progress towards a climax is impossible, and the climax would be but a scream.

The first condition with all singing is to impart ease of attack to the voice, and this acquirement can be much promoted by the studies of the ornamented style, which will, at the same time, promote the equalising of the register. These studies are also to be recommended for extending the compass of the voice in the higher scales.

The higher notes, it ought to be understood, are acquired only by a gentle attack, and not, as the uncultivated singer is mostly prone to, by an effort increasing from note to note. Here Professor Engel again observes: "The study of the coloratur, or the ornamented style, admits of more prolonged exercises than *portamento* singing, because the material of the voice is less taxed by the former.

My *maëstro*, Ronconi, said: "*Bisogna formare la*

voce in ogni genere di canto, non meno nel portamento, nel canto d'agilita, di grazia e di bravura e finalmente nel canto declamato"—(One must exercise the voice in every style of singing, not less in the *portamento*, in the *canto d'agilita*, and in the sentimental, than in the style which requires agility, grace, and *bravura*, and finally, in declamatory singing).

I shall now state the notes on which the practising of the falsetto must be commenced. The basso-profundo may begin on the *a* or *b*, the basso-baritone on *d'*, the baritone on *e'* flat, the tenor on *f'*, mezzo-contralto *d''* or *e''* flat, mezzo-soprano *e''* or *f''*, soprano *f''* or *f'' sharp*.

Yet falsetto may be commenced with a semitone or two higher or lower, as each vocal organ is differently formed, and the break or transition to the falsetto must be a different one with each. Two voices perfectly equal to each other are as little to be imagined as two equal leaves on a tree. We once more wish to repeat that breath must never be taken in passing from the chest to the falsetto voice. This would render it altogether impossible to smooth over the break and to find the way to the falsetto. As little must the position of the mouth be changed in passing to the falsetto. There are singers, too, who can sing everything in chest-notes. Mancini says (p. 62): "*Si da anche qualche raro esempio, che qualche d'uno riceve dalla natura il singolarissimo dono di potere eseguir tutto, colla sola voce di petto.*"

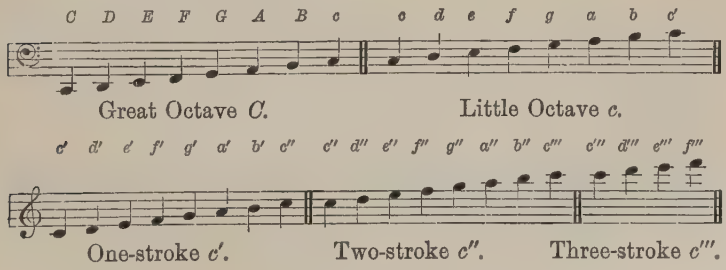
There are also rare cases of persons having received from nature the most singular gift of being able to sing everything with the chest-voice. Garcia, too, states in proof of this assertion, that the tenor Duprez

sang in "Guillaume Tell" the high c'' with chest-voice in the *timbre chiaro*.

The whole range of notes commanded by the different classes of the human voice together is of a compass of something above four octaves, and within four octaves one may class twelve different classes of voices.

The mutual relation in which these different voices stand to each other is — the tenor lies four tones higher than the bass, the alto four tones higher than the tenor, the soprano four tones higher than the alto; or, the bass lies one octave lower than the alto, the baritone one octave lower than the mezzo-soprano, and the tenor one octave lower than the high soprano.

Of the four octaves, the lowest, from *C* to *c*—that is, from to —is called in German works the great octave; the next, beginning *c*, and extending from to , is called the "little octave;" the next, extending from c' to c''—that is, from to —is called the "one-stroked octave;" the fourth, from c'' to c'''—that is, from to —is called the "two-stroked octave."



Voices rarely reach beyond the thrice-stroked *c*. Only prodigies like Adelina Patti, Albani, Bianca Bianchi, achieve even the *f‴* above it. On the other hand, notes below the deep *C* of the large octave (grosse octave) are sung only by some singers in the service of the Russian Church. Those notes, however, ought not to be called singing—it is rather a grunt, offensive to every refined musical ear. In the following I give the compass of each of the twelve different classes of voices, along with the operas in which each of them is most effectively represented—

1. *Basso-profondo, or Basso serio*—

From *E* of the great to *e′* of the one-stroked octave, as in the operas :

Il Flauto Magico,	by Mozart,	Sarastro.
L'Ebrea,	„ Halévy,	Cardinal Brogni.
Roberto il Diavolo,	„ Meyerbeer,	Bertramo.
La Forza del Destino,	„ Verdi,	Padre Guardiano.

From 82.5 *to* 330 *vibrations in the second.**

2. *Basso-buffo, or Basso-parlante*—

From *F* or *G* of the great to *e′* or *f′* of the one-stroked octave, as in the operas :

Don Giovanni,	by Mozart,	Leporello.
Il Barbiere,	„ Rossini,	Bartolo.
Il Matrimonio Segreto,	„ Cimarosa,	Geronimo.

From 88 *or* 99 *to* 330 *or* 352 *vibrations in the second.*

* The meeting of German naturalists of 1834 adapted the standard pitch of the musical scale discovered by Scheibler, according to which the one-stroked *a′* makes 440 vibrations in the second. By this standard I have calculated the number of vibrations of the lowest and highest notes of each class of voice, and stated it along with each class.

3. *Basso-baritono cantante—*

From *A* of the great to *f* sharp or *g′* of the one-stroked octave, as in the operas :

Don Giovanni,	by Mozart,	Don Giovanni.
Lucretia Borgia,	„ Donizetti,	Alfonso.
La Sonnambula,	„ Bellini,	Rodolfo.

From 110 *to* 367 or 396 *vibrations in the second.*

4. *Tenore-baritono brillante—*

From *B* (*i.e.*, *B* flat) of the great to *g′* of the one-stroked octave, as in the operas :

La Forza del Destino,	by Verdi,	Fra Melitone.
Don Carlo,	„ Verdi,	Marchese di Posa.
Ferdinand Cortez,	„ Spontini,	Telasko.

From 123.75 *to* 396 *vibrations in the second.*

5. *Tenore eroico di forza—*

From *c* of the little to *b′* (*i.e.*, *b* flat) or *c″* of the one-stroked octave, as in the operas :

Gli Ugonotti,	by Meyerbeer,	Raul.
Aida,	„ Verdi,	Radames.
Muta di Portici,	„ Auber,	Massaniello.

From 132 *to* 510.56 *or* 528 *vibrations in the second.*

6. *Tenore lirico d'agilita—*

From *d* of the little to the two-stroked *c″*, as in the operas :

Il Barbiere,	by Rossini,	Il Conte D'Almaviva
La Sonnambula,	„ Bellini,	Elvino.
Don Giovanni,	„ Mozart,	Don Ottavio.
I Puritani,	„ Bellini,	Arturo.

From 148.5 *to* 528 *vibrations in the second.*

7. *Contralto*—

From *f* of the little to *e″* or *f″* of the two-stroked octave, as in the operas :

Maria di Rohan,	by Donizetti,	Sondi.
Semiramide,	„ Rossini,	Arsace.
Linda,	„ Donizetti,	Pierotto.

From 176 *to* 660 *or* 704 *vibrations in the second.*

8. *Mezzo-contralto*—

From *g* of the little to *g″* of the two-stroked octave, as in the operas :

Il Matrimonio Segreto,	by Cimarosa,	Fidalma.
Lucrezia Borgia,	„ Donizetti,	Orsino.
Montecchi e Capuleti,	„ Bellini,	Romeo.
La Clemenza di Tito,	„ Mozart,	Sextus.

From 198 *to* 792 *vibrations in the second.*

9. *Mezzo-soprano*—

From *b* flat of the little to *g″* or *a″* of the two-stroked octave, as in the operas :

L'Ebrea,	by Halévy,	Rachele.
Aida,	„ Verdi,	Amneris.
Freischütz (Il franco cacciatore),	„ Weber,	Anetta.
Il Re di Lahore,	„ Massenet,	Kaled.

From 247.5 *to* 792 *or* 880 *vibrations in the second.*

10. *Soprano sfogato di forza*—

From *c′* of the one-stroked to *c‴* of the three-stroked octave, as in the operas :

Gli Ugonotti,	by Meyerbeer,	Valentina.
L'Africana,	„ Meyerbeer,	Selica.
Fidelio,	„ Beethoven,	Fidelio (Leonora).
Don Giovanni,	„ Mozart,	Donna Anna.
Il Re di Lahore,	„ Massenet,	Nair.

From 264 *to* 1056 *vibrations in the second.*

11. *Soprano-acuto d'agilita—*

From *e* of the one-stroked to *e‴* or *f‴* of the three-stroked octave, as in the operas :

Il Flauto Magico,	by Mozart,	Astrifiamente.
La Sonnambula,	„ Bellini,	Amina.
L'Ebrea,	„ Halévy,	Eudossia.
Dinorah,	„ Meyerbeer,	Dinorah.

From 330 *to* 1320 *or* 1408 *vibrations in the second.*

12. *Haute-contre—*

First called Alto-voice, is a rare variety of the male voice, occurring in the south of France and in Russia, and lies half an octave higher than the high tenor. The term "Haut-contre" is used in the compositions of an earlier date, for the higher contre-part of the tenor, when the latter has the leading melody.

The part of the scale lying between *c′* (264 vibrations) and *f′* (352 vibrations) is within the range of nearly all the different classes of voice. In intrusting to a singer his part in an opera, the compass of his voice will be the first consideration. Sometimes a tenor will have to sing the part of a high baritone, or a baritone that of a high bass, for the application of another *timbre* cannot make up for notes awanting.

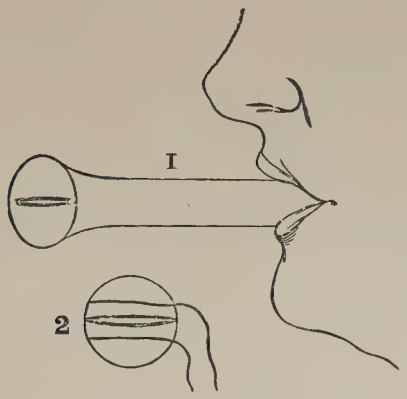
From the above it will be conceived how great is the responsibility of those engaged in classifying and training that precious gift, the singing voice. It will also be felt that at least as much depends on the master's integrity as on his knowledge and skill.

Besides possessing mature experience, he must be a *vir probus*, an honest man, who is at the same time a

practical artist, for only he will be able to treat and to mould voices correctly, keeping in mind the words of Paolo Veronese: "*Che non poteasi far ben giudizio della pittura che da coloro ch'erano bene istruiti nell' arte.*" "That he alone is able to judge rightly of the art of painting, who has himself thoroughly acquired it." The same holds good with regard to all other arts, and accordingly also to the art of singing. Yet let no student of singing believe that, to become an artist, it suffices to have an artist for his master. "Only a part of the art can be taught," says Goethe—the artist requires the whole.

NOTE TO LECTURE THIRD.

In the course of the lecture, when describing the artificial larynx to the audience, the author made the following remarks: "Here you see an artificial larynx, which I have constructed in order to demonstrate to you the vibrating mechanism of the vocal chords under the different conditions which produce either chest or falsetto notes, and the different *timbres*. You must not expect to hear beautiful notes, for what this larynx lacks I could not give—*soul*. All experiments of a



similar kind must be failures with regard to beauty; for even the notes which, first Johannes Müller, and after him many others, produced from a lifeless larynx, were disagreeable, and in fact dead sounds. Another reason for the dryness and coldness of the sounds is the absence of the superlaryngeal tube. The vocal chords of the instrument before you are of india-rubber attached to a glass tube. Now I am going to produce a chest note as shown in diagram (fig. 1); and now, by

separating by means of silk threads the larger portion of the vocal chords from their edges, and allowing a sufficient breadth of the free edges to vibrate, I produce a falsetto note (fig. 2); *while in entire accordance with the statements of page* 88, *I find that if I limit too far the breadth of the vibrating part of the india-rubber there is no production of sound at all;* and now, by tightening one of the india-rubber vocal chords more than its neighbour—that is, by allowing one to vibrate only on its edge, while the other vibrates in its entire breadth—I will produce a *voix mixte* note. Such an artificial larynx, which may be constructed simply and cheaply, is very instructive, and is susceptible of a good deal of painless experimentation; but at the same time the most profound study of such a mechanical contrivance, though it may interest and even aid the singer, will never be the means of enabling any one to become in any sense a truly great artist, much less can its tones be flattered as beautiful by imitation of them on the part of any one who wishes to sing agreeably and well."

LECTURE FOURTH

PORTAMENTO DI VOCE

ADELINA PATTI—EXPRESSION—LEGATO

THE CHARACTER OF THE DIFFERENT KEYS—SHAKES

BIANCA BIANCHI—RECITATIVO

COUNT BARDI AND THE FRIENDS OF CLASSICAL ANTIQUITY AT FLORENCE

BEETHOVEN'S FIDELIO—FRAU SCHRÖDER DEVRIENT

MONS. E. LASSALLE

DELIVERED AT THE

FREEMASONS' HALL, EDINBURGH

JANUARY 14, 1882

"Usus efficacissimus rerum omnium magister."—PLINY.

PORTAMENTO DI VOCE, ETC.

I HAVE in my third lecture treated of the equalisation of the voice, and shall now pass on to the *portamento di voce.* This is a perfectly natural sequel, as a truly artistic *portamento* can be produced only after the equalisation of the voice in its entire compass has been achieved. We must obtain an equalisation of the voice so complete as to be able to connect easily and melodiously the lower with the middle notes, and these again with the higher ones.

To produce a beautiful *portamento,* we must possess the three principal qualifications for *messa di voce* comprised by the old masters with respect to breathing in the words: "*L'arte di conservare rinforzare e ritirare il fiato,*"—*i.e.,* the power long to preserve, to increase, and to withhold the breath. A noble *portamento* undoubtedly constitutes, along with the *messa di voce,* the most beautiful element in singing.

The queens of the art—Mesdames Mara, Pisaroni, Grisi, Persiani, Catalani, Sontag, Lind—and not less the heroes of song—Rubini, Donzelli, Tamburini—are known to have devoted most thorough study to the *portamento,* and to have thereby not only preserved their voices to an extraordinary age, but also, in no

small measure, to have owed their success to that study.

For the acquisition of a beautiful *portamento*, the following is an effective exercise: Let the singer start softly one of his deep notes, dwell on it steadily, and *crescendo*, and then, without a jerk, and without touching any of the intermediate notes, rise to its octave, starting this true and *piano*, and swelling it by a *crescendo* with the remainder of the breath, which, on these occasions, must be most carefully husbanded. This exercise, carried out through the entire compass of the voice, strengthens it greatly, and should be practised daily by the more advanced singer before singing any set pieces.

The voice must, in these exercises, be sustained and carried on in such a way as nowhere to drag indifferently or to break. Beginners are apt to attempt to reach the end by trailing the voice through the scale, in the expectation of hitting the proper interval by touching the intermediate notes. They must of course be timeously guarded against this error.

By practising correct *portamento*, we render our singing more true, and develop the ring and sonorousness of the voice. Yet the *portamento* exercises must not be too protracted, and least so in the highest notes.

Beginners do well to sing their earlier exercises on notes sustained at an equable *piano* or *forte*, and only later on to introduce *crescendo* and *decrescendo* in one breath, endeavouring to produce the greatest possible volume of tone with as little breath as possible.

In *portamento*, as well as in *messa di voce*, the

correct distribution of the breath is of main importance.

A powerful tone need not always be kept in view as the main object in singing. That which in singing really makes the tone appear rich and full is nothing else than the unbroken continuity of the sounding vowel, whether it obtain in a greater or smaller degree of force. While singing, no particle of air must pass the throat without producing tone—no waste air must escape; on the contrary, the whole of the breath must in singing, and especially in *portamento*, flow forth as a wave of tone, and not of air.

After having devoted some minutes to *portamento* exercises, scales must be practised with *crescendo* and *decrescendo;* for, like man in general, so the throat in particular likes a change.

The *portamento* exercises must be accompanied on the piano until the pupil has acquired great readiness in forming the notes true and beautiful, and, as it were, spontaneous. Then only may he be allowed to sing *a secco—i.e.*, quite alone without accompaniment—and after a few bars, the last note sung by him may be touched on the piano in order to be convinced that the voice has neither fallen nor risen.

The term "*portamento*" is derived from "portare," to carry, and this carrying on and joining of one sustained note to another must be accomplished without any start or jerk, and without even a suspicion of an intermediate note becoming audible; the voice must flow on as in one perfect jet of tone, and as it were ethereally.

The first note must, without the least change in the *timbre*, and as it were gliding into it, intimately con-

nect itself with the following note without emphasising the latter in any way. This certainly requires a practised singer; but the pupil must not be deterred by the labour it requires. Let him consider how much time has to be spent in learning to render creditably on the piano even a common waltz or mazurka. The true student of the art will ever make it his ambition to attain to the highest. F. Tosi says: "*Chi non aspira ad occupare il primo luogo gia comincia a cedere il secondo ea poco a poco si contenta dell' ultimo.*" "He who does not with all his energy aspire to occupy the highest place in art is actually commencing to concede to others the second, and will soon be contented with the lowest."

Another exercise, or another way of binding notes, consists of joining two notes of different intervals by one and the same vowel for both.

True *portamento di voce* is a mutual intimate, connection of two notes in tone, each of the notes having a syllable of its own assigned to it. It is brought about by anticipating the note of a second syllable while continuing the vowel of the first.

When this *portamento* is clumsily executed, so as to show an undecided trailing of the voice through the smallest intervals, instead of the anticipation of the second note, the Italians apply to it the terms *strascinare la voce,* "trailing of the voice," or also *cercare il tuono,* "fetching about for the note."

The old Italian school said that without *portamento* there was no singing, but only isolated notes void of all spiritual connection. According to the Bernacchi school, one may illustrate the *portamento* by imagining two pearls strung on a fine thread. The pearls

represent the two notes to be joined, and the thread the connection, the swift gliding of the voice from the one note to the other.

The most expressive and sympathetic *portamento* that I have ever heard is that of the darling of gods and men, Adelina Patti. I believe that scarcely any other songstress is equally rich in pearls. I mean those notes gliding like invisible pearls from her lips, and certainly more precious than all the pearls eye can behold. I never heard an artist equally capable of singing so much with so little expenditure of breath. A sparkling writer once called Italy "the Lord's own conservatoire," and in this conservatorio, said Hanslick, Adelina Patti has indisputably carried off the first prize.

According to the Bernacchi school, the *portamento* of the Italians consists in joining on two different syllables two notes which form a smaller or larger interval in such a way that by a gentle legato, commencing at the close of the first note, the voice glides rapidly over to the second note by means of anticipating it. Bernacchi adds: "It is the teacher's business to sing, and to continue singing, to the pupil the *portamento*, and to make him imitate it until it is entirely mastered." I think it is desirable, too, that the teacher should copy the pupil's faults, in order to challenge his judgment, and to make his sense of tone more acute; for it is in human nature to judge our neighbours more accurately than ourselves. The fable has it: "Man carries his neighbour's faults at his breast before him; but his own faults he carries on his back, where he does not see them."

Some Italians call the musical sign ⌒ marking the

portamento—the transition from one note to another —"*Il ponticello, the little bridge.*" I should call it a magic bridge, the architect of which requires to be a noble artist, on whose skill both the safety and the beauty of the structure depend. The less material he employs in building it, the safer is the bridge, and therefore I may indeed call it a magic bridge, and warn pack-horses and heavy waggons not to tread it. Feelings only may traverse it and pass from soul to soul. To them alone it is open, and only at their command.

Many nature-taught singers, indeed, think it melting melody and sympathetic expression when they very innocently mew their notes up and down with a rush of superfluous breath, often enough escorted by some nasal and palatal accessories. This is a style of execution which may meet with acceptance, but is by no means to be commended for imitation to the growing artist.

Like religion, art ought to seek truth; and since all truth is harmonious, and all harmony beautiful, art must also seek beauty.

Portamento has its place chiefly in pieces in which tender sentiment is to be expressed; yet in the representation of violent passions, and in the delineation of gloom, not less than of the serene, and even in the recitativo, it may not always be dispensed with. The artist's taste has in most cases to decide where *portamento* may be employed. Expressiveness is both the object and the effect of *portamento*, no matter whether love, grief, or joy be the emotions to be characterised. Still, as observed above, tender sentiment can least do without it.

The art of truthful expression is nothing less than

the art of revealing in beautiful form, with such means as we have acquired, the most excellent idea the mind is capable of realising. Where conception of beauty and talent is wanting, all labour to impart expression must be in vain.

It is a most important rule that one should not try to express anything before one has most clearly and vividly conceived it. The ideas which we wish to convey to others must lie distinctly in our mind like a beautiful picture. He alone who can clearly think can clearly express himself. The singer, not less than the actor, must profoundly impress his imagination with everything expressive he can discover in nature and in art, and must endeavour to copy it by indefatigable study. The first condition for the attainment of a perfect expression is, that the singer should as much as possible identify himself with the state of the person whose emotions he is to represent.

There are no set rules for giving our features the expression of sorrow or joy; but if we ourselves feel sorrow or joy, they assume of themselves the proper expression.

Expression is the soul of music: without it music is reduced to a mere toy; by its means music becomes the most telling form of speech, irresistibly affecting the heart. Now it compels us to be tender, and again it inspires us with courage and steadfastness; now it excites our compassion, now our admiration. Every good musical composition has its own character, genius, and expression, which prevail in all its parts. These the singer must transfer to his rendering so completely as to sing, so to speak, out of the very soul of the composer.

If the singer finds the true expression for each composition, he will not fail to inspire a public of cultivated taste.

Yet how does the artist achieve this magic power of swaying so irresistibly our hearts? Nature must have built the foundation for this power in his soul, so as to make it capable of being tuned to every kind of emotion and passion. He will succeed in expressing only what he himself vividly feels. "The best teachers can do no more than refine the substance which the Great Spirit of Life created, for he is a moulder, and not a Prometheus who may snatch fire from the laboratory of nature and infuse it into dead matter."

Portamento must not be introduced too frequently, as this would make the style overloaded and laboured. Too little of it, on the other hand, leaves the performance stiff and bare.

The quicker the time, the less is the demand for *portamento;* the slower the movement, the more necessary is it, and it is therefore most necessary in the *cantabile.* Let every singer, particularly in *portamento* singing, cling to the golden rule that he must not drown his notes in his breath.

Legato.

In now proceeding to the discussion of *legato,* we observe that it consists in fully sustaining each note up to the commencement of the succeeding one. Accordingly we sing *legato* when the current of air proceeding from the chest is continuous. If, on the other hand, we should allow the sound of the voice to cease even for an instant before passing on to a succeeding

note, all linking would be at an end, and we would get into a *staccato*—*i.e.*, the severing, or, more correctly, the thrusting out of the several notes.

While in *legato* it is an essential condition not to curtail the note of even the smallest part of its value or duration, in *staccato* singing one deprives each note of a series of a part of its value by a momentary break. The singer must in *legato* singing, precisely as in *portamento di voce*, progress with his voice from note to note in close junction, without even the remotest tendency to touch on any intervening note not marked by the composer, and he must distinctly sound each note to be sung.

Each note must, so to speak, form a pearl, rounded off in itself, softly detaching itself from the preceding, and quite loosely joining the succeeding note.

A singer who knows how to sing *legato* beautifully, will also have a beautiful *cantilene*, and of him it may appropriately be said that he possesses a treasure in his throat.

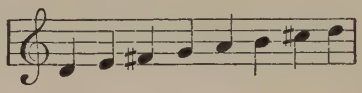
The teacher must endeavour to impart to his pupil a correct *legato* by his living example; for true life can be inspired only by life itself, and not by the dead letter of the school.

One may learn first to join two, then three and four notes, and then progress to an octave.

The ascending scales are to be sung *crescendo*, and the descending *decrescendo*, in doing which, however, all shifting and sliding of the larynx are to be avoided. In the same way the singer has to avoid every undue depression of the larynx in the ascending scale, as he otherwise will never be able to give a noble effect to a scale.

With intelligent tuition every singer will soon discover the exact position of the larynx necessary, provided that he possesses the requisite appreciation of tone.

A peculiarity common to bass as well as alto voices is to be observed in singing the scale of D major.



In passing from C sharp to D an entire change of the vocal mechanism takes place. It is therefore of the greatest importance to preserve equality in the notes, and to sing the notes B, C sharp, and D, with a steady position of the tongue, and without altering that of the mouth, and especially that of the larynx, by which means the equality of these notes may be insured.

In some voices the above-mentioned change of the mechanism will take place on C, in others on C sharp. Where the latter is the case, the larynx must not be allowed to rise prematurely on the C, and the singer must join the notes with little expenditure of breath. I repeat, that the singer must not forcibly depress his larynx, as in so doing he will never produce a free and beautiful, but on the contrary only a strained, squeezed, and hard tone.

The formation of a noble tone is the chief aim of all study of singing. For in the same manner as the greatest sculptor could never chisel in granite a form of equal beauty with one in Carrara marble, so also will no singer, even were he the greatest genius, be able in hard tones to render sympathetically, and with artistic beauty, the simplest song. He must have early

acquired a correct formation of tone, and moulded his voice to softness and flexibility.

Scales must first be sung in the slowest time, and with increasing power of execution the measure may be gradually accelerated.

First the exercise must be sung on the vowel *a* (ah), next on *o*, and finally *e* (eh). A great, yet not the least common mistake of beginners, is to change the vowel in singing one and the same scales—in other words, to fail in purity of vowel-formation.

Agricola (*loc. cit.*, p. 132) observes: "The same vowel with which the scale is commenced must be continued unaltered to its very end." I have said that scales may and must be practised on the different vowels in the order given above: yet great care must be bestowed upon their purity, clearness, and distinctness.

A correct position of the tongue is of the greatest consequence for purity of vowel sound. Most faults as to *timbre* arise from a false and uneasy position of the tongue. If such is the case with normally formed tongues, we can easily perceive of what importance is the scientific training of abnormally compact and heavy tongues. Unusually thick tongues may be improved by assiduously pointing them, and by freely, though without forcing, extending them forward so as to make the muscles more supple.

Pointing the tongue is best effected by practising for some time *prestissimo*, the syllable "*di*" on any of the notes of the middle register, first with a gentle, and later on with a more decided start. The procedure here described may not at once attenuate a thick tongue, yet it will certainly impart to it a greater

facility of motion, which in itself is an important point gained.

Indistinctness of vowels also arises from the singer's rashly taking too quick a time.

Tosi (*loc. cit.*, p. 34) observes : "*Sappia l'instruttore che se una buona voce agiatamente sparsa si fa migliore, agitata poi dal moto velocissimo de' Passaggi in cui non ha tempo d' organizzarsi si converte in mediocre, e talvolta per negligenza del maestro, e con pregiudizio dello scolaro diventa pessima.*"

"Let the teacher well understand that a good voice improves if led by degrees to quick movements after being well practised in sustained notes, but that, on the other hand, it becomes mediocre if it at once rushes at rapid passages to which its organs have no time properly to adjust themselves, and that it sometimes becomes one of the very worst, to the great injury of the pupil, through the carelessness of the teacher."

Let the singer always accompany his exercises on an instrument of proper pitch, and not use the one day a piano a semitone higher than that, perhaps, the next day used at his teacher's.

Only instruments of the normal pitch, as defined by me in my Third Lecture, p. 124, ought to be used for practising, as well as for performing on other occasions. The best known manufacturers of pianofortes tune their instruments for concert-halls a semitone too high, in order to give more brilliancy to the tone, and also to obtain greater effect.

This one semitone may in pieces written in a high key do great injury to the voice, and concert-singers would therefore do better if they endeavour to achieve their successes with their own instruments, which

they must not subordinate to the exigencies of the manufacturers.

There is often in halls where orchestral music is performed no room for placing a second piano tuned to the normal pitch. In such a case I cannot urgently enough recommend the transposition of the pieces to be sung. Where the orchestra of the opera has adopted the high pitch, the airs ought to be transposed a semitone lower.

There are unfortunately conductors who pay no regard to the interest of vocalists, maintaining that the piece would lose in character by being thus transposed, though there is no foundation at all for such an assertion; for to this very day the views of musicians as to the character of the different keys are greatly divided, and in manifest contradiction to each other. Schubart, in his 'Aesthetik,' maintains that each tone in the scale is either a "coloured" one or of no colour (expressions to which the Greek terms chromatic and achromatic seem to have given rise). Innocence and simplicity, he continues, are expressed by "non-coloured" keys; gentle and melancholy sentiment is expressed by the keys that have the flat mark; wild and strong passions by those marked "sharp." *C* sharp is quite pure or colourless. Its character may be called—innocence, simplicity, *naïveté*, child-speech. *A* minor, pious womanliness and mildness. *F* major, pleasantness and rest. *D* minor, moping femininity, "brooding over spleen and vapours." *B flat* major, bright love, good conscience, hope and longing for a better world. *E flat* major, the tone of love, of devotion, of confiding converse with God, expressing by its three flats the Holy Trinity. *B* minor, so to speak

the tone of patience. *B* major, strongly coloured, indicating wild passion, and so forth. *E* major, jubilant joy, laughing pleasure. *D* major, the tone of triumph, of war-cry, &c. I have some doubt, indeed, whether every musician will discover in the mentioned keys the different emotions thus ascribed to them; and would only remind my readers of Beethoven's concerto in *E flat* major for piano and orchestra, of his third symphony in the same key, the Sinfonia Eroica, and Mendelssohn's string-quartet, also in *E flat* major, and full of energy and life. We see that Beethoven composed his Eroica in this *E flat* major, which according to the above is the tone of love and devotion.

But I would further point out that there is no fixed pitch for the individual keys previous to the present Paris pitch. The pitch indeed varied hither and thither within rather wide limits. At the time of Tosi the pitch differed in some of the Italian cities by a full third, and he expressly says: "*Eserciti lo scolare studiando sempre sul Tuono di Lombardia, e non su quello di Roma non solo per fargli acquistare e conservar gli acuti, ma perché non sia incomodato mai dagli strumenti alti, essendo lo stento di chi non puo ascendere egualmente penoso, e a chi canta, e a chi sente.*" "The master should train his pupils always to the pitch of Lombardy, and not to that of Rome, in order that they may not only acquire and preserve the high notes, but also that in course of time high-pitched instruments may not cause them any inconvenience; for the strain a singer has to put upon himself when he wishes to reach a high note, without being able to do so, is as annoying to him who listens as to him who sings."

In Lombardy the instruments stood at a very high pitch, in Rome at a very low one; and Agricola remarks: "Singers can hardly execute Roman airs in Venice, or Venetian airs in Rome." The former are too high for Venice, and the latter too low for Rome.

Professor Naeke showed, at a conference held in Dresden in 1862 for the regulation of the orchestral pitch, that the following had been the pitch of the one-stroked a' at different places and dates:—

1.	Lully, *Académie Royale* of Paris, 1680,	404 vibrations.
2.	Gluck at Paris, *Iphigenia*, 1774, .	410 „
3.	Händel and Gluck at Vienna, . .	416 „
4.	Spontini at Paris, *Vestalin*, 1807, .	420 „
5.	Orchestra of the Roman Cath. Church at Dresden, 1861, ...	425 „
6.	Rossini at Paris, *Wilhelm Tell*, 1829, .	430 „
7.	Dresden Opera, 1861, . . .	446 „
8.	Vienna Opera, 1861, ...	466 „

Is it to be assumed, then, that the character of a certain key remained the same with the pitch differing so widely as to make the key actually sometimes B, sometimes A, and sometimes A flat? I do not think so; for, according to the above statement, Gluck's works, for example, must have altered their character, and thus eventually be altogether devoid of character in 1882. We may assert this of the principal personages in his "Paris and Helena;" they may, indeed, have been devoid of character, but this can surely not be said of the composition itself. Accordingly, the idea that there is a peculiar character inherent in each particular key would appear to be rather too fanciful. I believe that a piece may lose its character if it is transposed by a *fourth*, or even by

a *third*, for the composer chooses the key for his work with due regard to the practicability of its execution by the instrument or the voice for which he is writing; and further, with regard to the character which he intends to be given to the piece, and which is limited to the suitable register. Too high a register or key gives the composition too much of a strained expression; one taken too low deprives it of richness of sound.

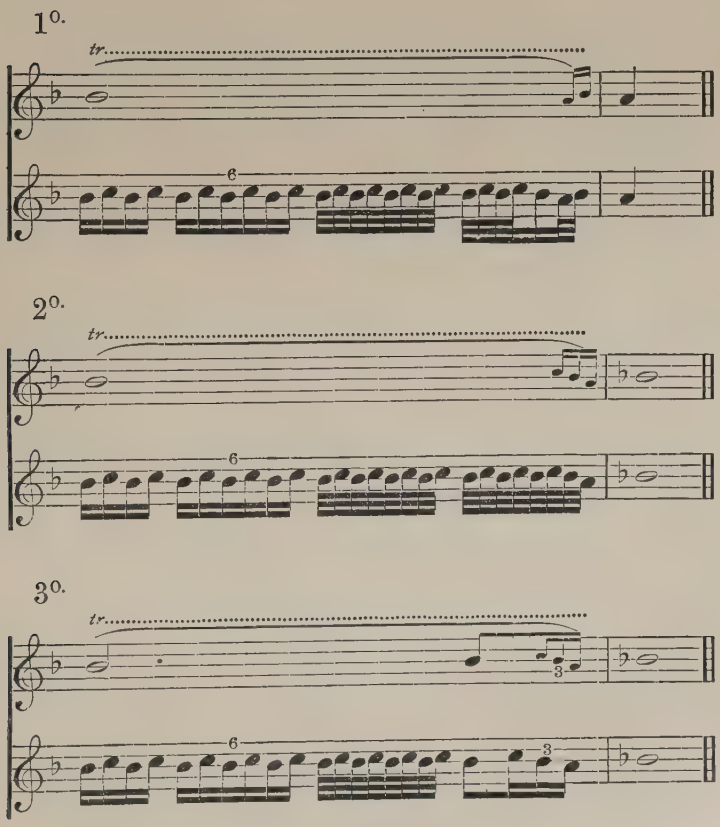
Compositions of so gloomy an expression as that of Schubert's "Wirthshaus," "Der Doppelgänger," "Die Krähe," can be rendered with due effect and character only by a bass voice. If pieces of this nature were put a *third* higher—and they have been published even for soprano—they might indeed be sung, but they must fall flat upon the hearer, being deprived of their proper character. The case would be similar if certain songs for soprano were transposed for a bass voice, or even lowered by a *third*. On the other hand, the character of an air written for a basso in too high a key cannot possibly suffer if it is sung a semitone lower; and I am convinced that an artist's singing can be truly characteristic only when he is making the most natural use of the notes at his disposal, and when he can discourse in them with the greatest freedom, and to his heart's content. So also is a beautiful *legato* possible only when we sing in our natural register.

Shakes.

The subject to which we next direct our attention is that of the shakes.

The shake (Italian, "il trillo") consists in the uni-

formly executed alternate repetition of the leading *principal* and a higher so-called *auxiliary* note belonging to the same diatonic scale, which alternation is continued for the entire duration of the value given to the principal note.

Shakes must form no greater interval than that of the second or supertonic, or else of the diminished second, and must be finished by an embellishment formed of the note lying an interval lower than the principal and the latter itself. *E.g.:—*

It will be seen that the shake commences with the principal note, and that the voice has to dwell on it for a little before closing with the embellishment. Tosi remarks: "He who forms his shake of notes constituting the interval of a third annoys his hearers. If the shake is too slow it becomes tiresome, and if not sung true it would make one stop one's ears."

The rapidity of the shake depends on the time prescribed for the composition, on its general character, and on that of the particular passage in which it occurs; and well sung, it is unquestionably the finest though the most difficult ornament of a song.

Though in general the rule is that the two notes of the shake must be sung as rapidly and as distinctly as possible, there are cases nevertheless when a shake more moderately taken is very effective; and under certain circumstances it is in refined taste to sing protracted shakes, as in cadenzas and pauses or *fermatas*, in accelerating and retarding time,—a device most charmingly adopted by Adelina Patti in "La Sonnambula" and in "Il Barbiere di Siviglia."

Indisputably Adelina Patti is the greatest *cantatrice* of our times, and has not her equal in *coloratura* or ornamented style. A musical critic at St Petersburg calls her the Paganini among vocal *virtuosi*.

In the valse by Venzano, which she introduces in Donizetti's "Linda," she sings a shake of seventeen bars in one breath, "smiling as if it were child's play." She knows how to surprise her hearers agreeably by cleverly introduced ornaments; yet she never overdoes these, like so many prima-donnas of modern times, and always keeps the ornaments in harmony with the spirit of the airs she has to sing.

In all her performances she manifests a lively sense of the beautiful, and a taste not at all one-sidedly developed; in short, a genuine love of the ideal, the first requisite for those who devote themselves to any art. It is a work of supererogation to add anything to her praise; all Italy has unanimously voted to her the title, "La Diva del bel canto."

In the old Italian school no one was recognised as a singer who was not quite accomplished in the shake. Mancini enthusiastically exclaimed: "*O trillo, sostegno decoro e vita del canto!*" "O shake, thou support and life of song!" Tosi says, "He who cannot accomplish a shake, or produces but a faulty one, will never become a great singer, although he should be proficient in many other things." There is no want, however, in our days, of excellent *coloratura* singers in addition to Madame Patti. I will mention only one, Bianca Bianchi, prima-donna of the Vienna Court opera, as distinguished by a beautiful and, I would say, faultless shake, and her eminent felicity in ornamental singing.

A special excellency of this charming artist consists in her uniting great dexterity with the utmost warmth of expression.

Mademoiselle Bianchi's *repertoire* is limited, yet one may say of her what Catalani once said of Henriette Sontag, "*Son genre est petit, mais elle est unique dans son genre.*"

I sang in 1879, as a guest, with this lady in the Court National Theatre of Pesth, in "La Sonnambula," and was witness of her being called eight times before the curtain at the close of the performance, which certainly says much, as the public of Pesth is very

strict in its judgment. Mademoiselle Bianchi at present sings at Vienna, the house being regularly filled. I may mention that Mademoiselle Bianchi is a German, her real name being Fraülein Schwarz.

It is of greater interest that she was not only born, but also educated and trained for the art in Germany, but, naturally, in the Italian school. There are persons who imagine that one can become a good singer only in Milan; nay, there are some who think that it suffices to have even breathed the air of that wonderful city in order to carry off the style of an *artista di canto*. This partiality for Italy is to some extent a prejudice, for in matters of artistic education it is not the country, but the school, which decides the point.

The shake is said to have been known even to the ancients under the name *vibrare*—at least, Pliny says so. But whether those shakes were up to the artistic mark would seem more difficult to prove. The revival of the shake is to be ascribed to a certain Luca Conforti of Milet, one of the singers of the Papal choir, who entered that body on November 4, 1591, and of whom Tomasi Aceti says, "*Hic vocem toto instructam organo sortitus est; musicæ peritissimus continenti spiritu tremulam edendi vocem rectisque harmoniæ regulis applicandi primus rationem invenit.*" ("This man, who had received from nature a complete organ in his own voice, being a most experienced musician, first invented the method of giving forth a shake with sustained breath, and of applying it in music according to correct rules.") Pope Sixtus V. expelled him the choir, for reasons not known. I suspect the reason must have been that Signor Conforti did not "shake" artistically after all.

The *conditio sine quâ non* for the shake is absolute control over the breath; easy and yet most accurate starting of the notes, so that they are never confusedly mixed up; and the truest intonation. The singer cannot attach too great importance to the point last mentioned, seeing that he has to sing the shake in cadenzas altogether without accompaniment, and that at its close he must be in most perfect tune with the accompaniment when it is resumed.

The position of the mouth must be unaltered throughout the shake; neither tongue nor lips nor lower jaw must be allowed to move, and the larynx alone must be in action. The great importance of this will be perceived when we call to mind the results of Helmholtz's investigations into the production of vowels; for as a shake can only be effected on a vowel, and as each vowel corresponds to a definite position of the mouth, it follows that the slightest change in the position of the mouth brings about a corresponding change in the vowel upon which the shake is heard to be performed. Lablache says: "*Le trille doit se faire sans remuer ni la langue, ni le menton, et en evitant tout secuosse du dosier.*" Every shake must, as has been remarked already, be started on the principal or leading, and not on the auxiliary note. The less impulse the shake receives from the chest, and the less air we use in producing it, the more beautiful it is. The two notes of the shake must be of equal value, and never be sung too loudly: it is also understood that from the beginning of the exercises all excess as to high pitch and rapidity must be avoided. By way of confirmation of this opinion, I may relate that Mozart, who was well grounded in the principles of

singing, having been instructed by the celebrated soprano, Giovanni Manzuoli, and later by Tenducci, wrote from Munich, where he had heard the *prima donna*, Kaiser, sing: "She has a beautiful voice; and her master, Valesi, evidently understands both how to sing and how to teach singing, for she still executes the shake slowly. This gives me great pleasure, for I feel sure that she will execute it the more purely and clearly when she comes later on to render it with more speed."

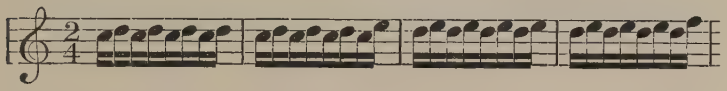
As in ornamental singing, so also in the shake, notes must never be taken hard. By restrained gentleness of breathing, any sudden start of the shake must be shaded off; this, besides, greatly facilitates reaching high notes. A certain measure in the use of these high notes must, however, not be exceeded. As soon as we feel the slightest inconvenience in the larynx when producing a high note, we have reached the normal height of our voice, which is not to be exceeded. Excessive range in extending the reign of a voice is as dangerous as excess in extending the limits of an empire. One of the generals of Alexander the Great very neatly symbolised the condition of the great conqueror's power. He put the dry stiff skin of some beast on the ground, and stepped on its edge at the one side. As soon as it was pressed down on the one side, it was tilted up at the others. In order to show that the same thing took place on whichever edge he trod, he walked all round the skin, until, thus circumscribing it, he had trodden down all its edges. Thereupon he stepped into the middle and held the skin fast, when all the parts lay quiet. This symbol was to teach the king that he should govern

particularly the centre of his empire, and not rove too far.

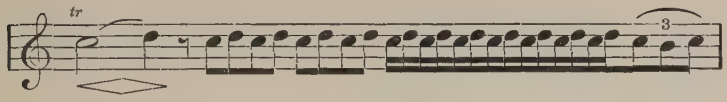
What this general thus typically represented to Alexander the Great I would commend for consideration to all students of the art of singing, if *not even to some statesmen.*

The principal means for imparting to students the accomplishment of singing a proper shake consists in teaching him early the art of executing the shake with a modicum of breath.

The Bernacchi school says: As soon as the pupil can sing correctly the following exercise (No. 1)—



he must each time, before he trills a note, sing *messa di voce*, and append to this the shake as prescribed in the next exercise (No. 2)—

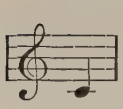
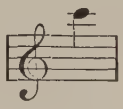
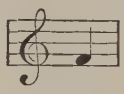
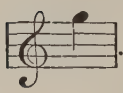


and he must proceed first by strongly marking the auxiliary note immediately after the *messa di voce:* then he must make a short break, and upon this commence the shake, without taking breath, and sing the first notes quite slowly, and the succeeding ones with gradually increasing quickness, while the close again must be taken slowly. By observing these rules, the shake will become easy and graceful, and the pupil will thus be early preparing himself for the art of closing *cadenzas* and pauses in an effective manner.

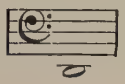
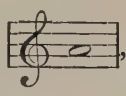
If, on the other hand, the teacher were to disregard

this important and well-tried rule, and allow the pupil to sing the shake with his full breath, the pupil would not only not acquire the art, but his shake would become what the Italians call *trillo caprino* (a he-goat shake), or a *trillo cavallino* (a horse shake), or, as they also say, he would "*belare come una capra*" (bleat like a goat). These faults arise from forming the shake with an unsteady position of the mouth, by an impulse from the chest, and with a large volume of breath. The shake thus becomes jolting and clumsy, instead of being steady with a light airy motion.

Neither the lowest nor the highest notes are fitted for the study of the shake. As a rule, the studies of the shake should be commenced on the fourth lowest and ended on the fourth highest note of the pupil's compass, counting the latter downward from the highest note at his command.

A soprano—the compass of which extends from to —would have at its extremes for the study of the shakes the notes to . The studies must be made first on the interval of the second, and then on that of the diminished second.

Any voice may accomplish the shake; but the study will be a more or less easy one, according to the degree to which the voice is flexible and amenable to cultivation. The more powerful a voice, the

more difficult is it for it to perform the shake. Yet the most famous bassos—Lablache and Fischer—have proved that one may have a giant's voice and yet acquire a beautiful shake by proper study.

It is well known that Mozart wrote the part of Osmin, in "Die Entführung aus dem Serail," for the last-named singer. Fischer's uncommonly sonorous voice had a compass from  to  , with the most perfect equality of tone. Mozart made him, in the air *Qui trovo una bella amante*, as also in *Ah che questi avventurieri*, "shake" like a prima-donna.

Handel was, with regard to dexterity, often more exacting in his demands on low voices of great power, than even on tenor and soprano voices; yet we know that he did not fail in finding singers even for such difficult parts.

Franz Hauser says: "The fact that ladies generally have a better shake than men, has its main reason in their greater diligence." Garcia mentions, in proof of this, the celebrated Signora Pasta. This great singer was for a long time not able to sing a shake and ascending scale, even at a moderate speed, and had therefore to make shift with slowly ascending scales and broken chords, until by degrees, with great perseverance in practising, she acquired the desired facility in both. Duprez makes the same observation, and says: "*Le trille est un don de la nature, mais on peut aussi l'acquérir par l'étude; parmi les nombreux exemples qu'on pourrait citer le nom de Madame Pasta se présente le premier; la nature lui avait refusé le trille, l'étude le lui a donné.*"

Patience and hearty interest are not only wings for great flights, they are required even for seemingly insignificant exercises. The old Italian school mentions several kinds of shake; we, however, are glad if the singer is able to execute artistically even one kind.

I am constrained to hold that the ordinary belief that shake exercises should be postponed to a relatively late period in the cultivation of the voice, is one grounded merely on prejudice; and that, on the contrary, not only *portamento* exercises, but also *coloratura* and shake exercises, should be introduced from the very beginning. This I find to be the most advantageous and least fatiguing method of study; and in reference to flexibility of voice, when we are advised to postpone the exercises designed to develop this character, we are reminded of the story of the wise Thales, who, when advised by his mother to marry, said, "It is not yet time;" and who, when after the lapse of time she became impatient, and again urged him to marry, convincingly said, "It is now too late." The larynx, if flexibility of the voice be not early acquired, too soon hardens and becomes lumbering in its movements, and thus the opportunity of acquiring flexibility is lost. We can never say that it is too soon to introduce such exercises in healthy voices, but we may easily find it to be too late.

People may be born with silver spoons in their mouths; a good shake is to be obtained only by patient industry. Through study, a proverb says, "patience yields roses." In the same way, we should say, "patience yields shakes;" and lastly, "practice makes the master."

Meanwhile, I suspect we have had enough of shaking, and shall therefore proceed to the—

RECITATIVO.

The *recitativo* may be called "a speech sung." It is a medium between singing and reciting, and serves in the opera as well as in the oratorio to deliver a narrative, a soliloquy, or a concise dialogue. Generally it is of a pathetic nature; frequently, however, recitatives occur also in the *opera buffa*, when they are more of the nature of conversation with prominent accentuation, and are then called *recitativi parlanti*.

The *recitativo* is the surest test of the singer, who can in it show the full power and greatness of his art. This is owing to his being able here to follow entirely the changing impulses of his feelings, seeing that he is not strictly tied down to time-rhythm; and he will therefore show best in the *recitativo* how much of quickening intellectuality he is endowed with.

Marx, in his work on 'Gluck and the Opera,' observes on the *recitativo:* "By this name we designate that style of singing in which melody and structure are determined by the meaning of the words, and not by musical impulses and motives."

Were the singer to see his task only in the purely musical element, and treat the words merely as an accessory—while, in fact, they are the most significant ingredient—the original element, and therefore the real content of the composition, would but partially receive its proper value.

I would altogether call the *recitativo* "sung declamation," and the intellectual part of song. The singer

of recitative must therefore, in the first place, have the clearest conception of what he means to represent in singing. He must make his hearers realise the sentiment expressed in the words, both by the different *timbre* he gives to the vowels, and by the most distinct enunciation of the consonants. Yet the most distinct pronunciation of the words, if without soul, would fail in producing the intended impression. "The letter killeth."

The same rules which apply to spoken recitation, also apply to recitation sung. The words connected in one idea must not be severed by rests or by taking breath. When we have to deliver a period or phrase of some length, we must manage our breath with all art and economy, lest our hearers should become aware of our labouring under difficulties; for in this, as in other cases, the admiration of the public ceases as soon as their pity is excited.

When joy or love is to be expressed in the *recitativo*, the clear *timbre* is required; sorrow and dissatisfaction demand the *timbre oscuro;* anger and rage demand an energetic and penetrating tone.

When a period or clause of the words terminates with two notes marked on the same line or interval, the first of these is generally taken a semitone higher than noted; sometimes, however, a semitone lower. By this change the *recitativo* is rendered more expressive, for it is apt to become monotonous when the two closing notes are taken at the same pitch. An intelligent singer will profit a great deal by listening attentively to the delivery of great speakers or actors, for in the *recitativo* also those points will be most dwelt upon, and be most strongly accented, which

from their grammatical value require to be most strongly emphasised or accented in declamation. This accenting, or bringing into prominence of a note, is called in singing *appoggiatura.* Jean Baptiste Lully, the creator of the national opera of France, always had the plays of *Quinault,* which he set to music, recited to him by an excellent actress before composing, and it was from her voice that he drew his best inspirations.

D'Aubigny observes: "The difficulty of the *recitativo* does not lie in what is written on the staff, but on what the singer has to add of his own; there are so many accents, aspirations, touches, appoggiaturas, &c., —all far too ethereal to be learnt or taught if noted down. Who can teach the bird how to lift his wings? who the poplar its soft rustling, or the brook its murmuring? It is one bird that teaches the other."

A carefully trained singer, who intelligently devotes himself to the subject, and occasionally hears good singers, will of himself discover in his notes those delicate gradations which determine truthfulness of expression in the *recitativo.* There was a time when Italian composers were accustomed to treat the *recitativos* with but little care, and had them inserted in their otherwise excellently composed operas for a few sequins by some so-called *maëstro.* Stefano Arteaga, in the 13th chapter of his work (*Le revoluzioni del Teatro musicale italiano dalla sua origine fino all presente:* Bologna, 1783), animadverts upon this neglect in the following terms: "A great mistake concerning the plain Italian *recitativo* is the manner in which it is slighted by composers. They content themselves with now and then accompanying the voice by a

stroke of the bass-viol, and leave the rest entirely to the option of the singer."

We know of the *recitativo secco*, that during a period of nearly two centuries it was merely indicated by a few chords on the *cembalo*, or by the *violoncellos;* in other words, it was but slightly sketched by the composers. About the end of the sixteenth century there used to assemble in Florence, at the house of the art-loving Count Bardi, a number of lovers of classical antiquity, who took an earnest interest in the cultivation of music and the drama. In aiming at the resuscitation of the ancient Greek style of singing they created the *recitativo* (and the Arioso style).

Vicenzo Galilei, father of the great *Galileo Galilei*, who was a member of this association, wrote the music to some pathetic scenes from *Dante's* "Ugolino," as also to some of the Lamentations of Jeremiah, and sang these with a fine voice, accompanied by the viola. *Guilio Caccini*, of Rome, a most accomplished singer, was in the habit of visiting the association, and likewise sang his own compositions, accompanying himself with the lute. It is to Caccini that we also owe that graceful style of singing which in those days spread over all Italy, as he imparted his style to innumerable pupils.

Besides these, there were Ludovico Viadana, who even in his time said that the singer was in need of brains not less than of a voice; and Jacobo Peri, who composed, for the celebration of the nuptials of Henry IV. of France with Marie de Medici, the pastoral "Dafne," and had it performed at the ducal court of Florence before a brilliant assemblage by distinguished artists and men of rank, when Peri, himself not less

distinguished as singer than as composer, sang the part of Orpheus.

In 1600 he composed the opera "Euridice," which was printed by Marescotti of Venice. In the preface Peri gives an account of the ideas and wishes that had guided him in his endeavours for the establishment of a dramatic style of music, after the manner of the ancients. He gives it as his opinion that the Greeks and Romans had used for the representation of their dramatic works a form of musical expression which, while it went beyond ordinary speech, did not rise to actual song, but rather kept the mean between the two.

Here also must be named Emilio Cavalieri, who wrote the pastorals *Il satiro* and *La disperazione di filene,* as also the oratory *L'anima e corpo.* In these compositions the recitation always was accompanied by a single instrument only, from which, as Von Dommer remarks, it may be inferred that time and *tempo* were in the recitation treated with much freedom. Besides, the singing and speaking of the reciters were not to be covered by the accompaniment—therefore the accompanying instruments were placed behind the scenes; while in the oratorio by Emilio Cavalieri the singers are recommended to carry instruments in their hands, by which, as it was believed, the illusion was better sustained than by an orchestra present to view.

In the beginning of the seventeenth century we have also *Claudio Monteverde* and *Giacomo Carissimi.*

The *recitativo obligato* or *stromentato* was introduced about the end of the seventeenth century by Scarlatti in his opera "Feodora." In the beginning

of the eighteenth century *Bach* and *Handel* did great things in the *recitativo* in their sacred and secular oratorios.

Gluck created the great declamatory style in the opera, and Richard Wagner has brought it to perfection. The *recitativo* plays a great part also in the songs of *Schubert* and *Schumann*, and in *Löwe's Ballads.*

The greatest interpretress of dramatic declamatory music was Madame *Schröder Devrient.* I give here the words of Richard Wagner: "It was Madame *Schröder Devrient* who kindled in my breast an enthusiasm of a noble kind. Even the remotest contact with this wonderful woman electrified me. For a long time after her death—nay, even to this very day—I see her, hear her, and feel her influence when under the impulse of creating artistic types." Wagner dedicated his work 'On Actors and Singers' (Leipzig, 1872) to the memory of the great *Wilhelmina Schröder Devrient.*

She sang in his operas "Rienzi," "The Flying Dutchman," and "Tannhäuser." It is well known, however, that she achieved her greatest triumphs in "Fidelio," the most arduous dramatic *rôle* ever written. The opera of "Fidelio," which had been thrice recast, and had been first performed in its final form in 1814, had been laid aside for several years, there being no representative of the principal part. In 1822, however, it was arranged that the opera should be given on the occasion of the empress's name-day in the Court opera of Vienna; and the trying part of Fidelio was assigned to Wilhelmina, then at the age of seventeen. When Beethoven was informed of this arrangement, he is said to have expressed his indignation at seeing

this lofty character intrusted to "such a child." Yet the appointment having been made, Madame Sophie Schröder, the once so celebrated tragedienne, practised the part with her daughter, and the rehearsals took their course.

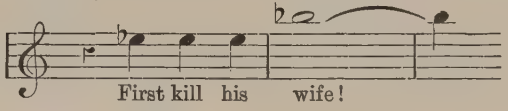
Beethoven had stipulated for himself that he should conduct the opera, and he wielded the baton at the final rehearsal.

Wilhelmina had never seen him before, and felt strōng misgivings when she beheld the great master, whose ear was then already closed to all earthly sounds, standing in his place, vehemently gesticulating, with dishevelled hair, distracted features, and weirdly-gleaming eyes. When he wanted a passage *piano* he crouched almost beneath his desk; at a *forte* he sprang up and ejaculated the strangest sounds. The orchestra and the singers became confused; and at the end of the rehearsal, the leader of the orchestra, Mr Umlauf, had to make the painful communication to the composer that it was impossible to leave to him the conducting of his opera.

Thus, on the evening of the performance, he sat behind the leader in the orchestra, having involved himself so deeply in his cloak that only his burning eyes shone forth from out of it. Wilhelmina was frightened by those eyes; she felt unspeakably uneasy and nervous. But scarcely had she spoken her first words when she felt as if touched by wonderful power. Beethoven, the whole audience, all seemed to vanish from her eyes. All that she had been labouring to acquire, all the tutoring she had received, departed from her. She herself was Leonore; she lived and suffered through it all, scene by scene.

Up to the scene in the dungeon she remained under this illusion; but here her power seemed paralysed. She suddenly became conscious of the inadequacy of her means to what she was the next moment to represent. Her increasing anguish found expression in her bearing, in her features, and in her every movement. But all this was so completely in harmony with the situation, that it produced the profoundest effect upon the audience. On the assemblage lay that breathless stillness which has as inspiring an effect on the performing artist as the loudest applause.

Leonore rallies her last strength; she throws herself between her husband and the dagger of the murderer. The dreaded moment has come, the instruments pause; but the courage of despair has now taken possession of her. In the clearest and purest accents, rather crying out than singing, she utters those heartrending words—



And as Pizarro makes an attempt to thrust her back, she snatches the pistol from her breast, and presents it at the murderer. He staggers back; she remains immovable in her attitude of menace. But now sounds the trumpet from behind the stage, announcing the arrival of the deliverer; and now also the tension that has so long sustained her gives way. Barely able with pointed pistol to drive the assailant towards the door of the jail, the weapon drops from her hand. She is faint to death with the tremendous effort, her knees tremble, she leans back, her hands convulsively clasp her head, and involuntarily there struggles from her breast that famous musical cry, which later

performers of "Fidelio," have been so infelicitous in copying.

In Wilhelmina's case it really was a cry of anguish that thrilled and penetrated the hearts of her hearers. And it was not until Florestan's pitying words: "My wife, what have you suffered for me!" at which, falling into his arms, she broke out into the half-sobbing, half-exulting "Nothing, oh, nothing!"—it was not till then that the spell that had bound all hearts yielded to a tumult of applause that seemed as if it could not end. The great actress had solved the problem of "Fidelio;" and however much and earnestly she subsequently laboured in refining it, her conception in its fundamental features remained the same.

Beethoven, too, had discovered in her his Leonore. True, it was denied to him to hear the sound of her voice, but the spirit of her song revealed itself to him in every feature of that countenance beaming with intellectuality, in the fervent life that governed her whole appearance. After the performance he went to see her; his eyes, otherwise so gloomy, smiled at her. He stroked her cheek, thanked her for her Fidelio, and promised to compose a new opera for her—a promise which, alas! was not to be fulfilled. Wilhelmina never met the master again; but amid all the homage paid to the celebrated woman in her later life, Beethoven's words of recognition remained her dearest remembrance. (See Glümer, *op. cit.*, p. 257.)

With this opera she also appropriately closed, on the 26th March 1831, her engagement on the Berlin stage, amid rapturous applause and with an enthusiastic ovation.

She had accepted a second call to Paris, and re-

opened a new series of triumphs in that capital on the 17th of May 1831. The *Chronique musicale*, in the 'Journal des Débats' of May 19th, reports on her first appearance in the following terms: "Beethoven, Fidelio, and Madame Devrient reappeared yesterday in the entire fulness of their fame and beauty. Till now the German stage had given us but a foretaste of its ability, and saved up its best for this decisive performance. Now it has recovered the full favour of the public; and the applause, the cheers, the profound emotion, and the tears of the assemblage, which could not have been more numerous, have most solemnly proclaimed this new triumph. Like Paganini, Madame Devrient has enchanted and enraptured her audience. A delirium equal to that inspired by Paganini has possessed her auditory, with this difference merely, that the raving is more universal. Paganini met with hearts impervious to all his wonders; Madame Devrient has conquered them all, not only through the power of her melodious arguments and sweet conviction, but also by the two beautiful eyes with which she so excellently knows how to inspire an assemblage." Liszt in his Essay remarks: "Madame Schröder Devrient has in the full sense of the word conceived with her artistic instinct the great pathetic agency of this *rôle*, and adequately set it forth. There can hardly be found a single person who, witnessing her performance, would not have been seized with enthusiasm when this charming woman in male attire, with a gesture, the import of which thrilled every heart, and yet with an inimitable grace of attitude, presented the pistol at the governor petrified with terror. It is scarcely saying too much that, as one must feel indebted to

the hand which the diamond required in order not to remain buried unappreciated in the soil, Germany also has to thank, next to Beethoven, Madame Schröder Devrient for the possession of a treasure which it now with such just pride calls its own."

There are unintellectual, though it may be not altogether untutored, singers who attach no particular value to the performance of *recitativo*, because in their vanity they consider only the fact that the public applauds songs and airs, but pays not much attention to recitatives. Such notions are not merely mistaken, but absolutely unworthy of an artist. It is certain enough that unartistic rendering of the *recitativo*, indistinct uttering of the words, false declamation or articulation, will tire the public; and singers should consider that a single moment of *ennui* often destroys the enjoyment of an entire *aria*, and even of the whole piece. On the other hand, even the most critical public will express its gratification with the rendering of *recitativo* by an intellectual singer such as, *e.g.*, M. E. Lassalle.

I heard this excellent artist in the Scala of Milano in the baritone part of Scindia in Massenet's opera, "Il Re di Lahore," and at once, at the very first *recitativo*, "*O tortura del dubbio! o tetra gelosia! Per quest' anima mia di vita o morte il verbo Amor pronunciera*," that audience—the most critical opera audience in the world—felt impelled to express its enthusiasm. The whole auditory burst out in a tumult of applause amidst shouts of delight, as if a great battle were being won: indeed it was a victory of a Frenchman over Italians.

His performances are so grateful to the listener,

because he knows how to combine the greatest distinctness of pronunciation with the most beautiful formation of tone. One understands every word of his without having recourse to the libretto. He is a singer who approaches as much as possible to declamation without ever ceasing to sing, and who possesses the art of giving to each word its truest expression. When one sees Lassalle's noble powerful figure, and hears his rich powerful voice, one is tempted to fancy that his chest is wrought of steel; but if one hears his melodious *piano* and *mezza voce*, one feels convinced that his notes are poured forth from the gentlest heart and the noblest mind. In the 4th act he sang the *romanze*, "*O casto fior, del mio sospir*," in the most charming style, with such economy and skilful management of breath as only few chosen ones are blessed with. His clear voice tolled so delightfully, and filled the vast house with such sweet melody, as to call forth universal rapture and the most enthusiastic "Bravos." Lassalle is a singer who will electrify every audience; and not only so by his *arias*, but by a single *recitativo*.

I think I may without exaggeration say that no living baritone may, as regards acting, singing, and declamation, dispute the palm with Lassalle; and singers ought to hear him whenever they have the opportunity of doing so. His style will excite even those of moderate gifts to emulation, and will encourage them in their efforts. Besides, a singer such as he is may prove an excellent physician to conceited artists, who, when they have attained to a certain professional status, think it beneath their dignity to hear an opera or concert, because they imagine that they have nothing more to learn. A great example like his—if any-

thing will do so—will work a radical cure of this infatuation, and speedily bring them to their senses.

It is especially the tendency of singers and musicians to think too much of themselves when they cease to mix with their fellow-artists, and to compare the merits of others with their own.

No true artist, be he singer or instrumental performer, will ever cease in his aspirations to greater perfection; and though, even doing one's best, one cannot achieve the highest, one may rejoice at being admitted to the company of the most worthy, and occupying a modest place at their side. For as Quintilian says: "If a warrior cannot attain the fame of Achilles, he will not scorn to be praised as an Ajax or Diomede; and he who cannot become a Homer will be glad of being a Tyrtæus."

LECTURE FIFTH

CARE OF THE VOICE; OR, THE SINGER'S DAILY LIFE

DELIVERED AT THE

FREEMASONS' HALL, EDINBURGH

FEBRUARY 8, 1883

"Die beste Medicin ist eine planmässige Gesundheitspflege."

—Dr Sonderegger.

CARE OF THE VOICE;

OR,

THE SINGER'S DAILY LIFE.

SINGING, besides affording a highly intellectual entertainment, may also be considered as a very efficacious form of sanitary gymnastic, in so far as in singing there are always very deep inspirations, followed by extremely retarded expirations. This, in the course of time, greatly tends to the strengthening of the chest; and I would therefore recommend persons of a delicate constitution, though they have but a few notes at their disposal, and may not expect to use them for artistic purposes, or have any hope of appearing as leading tenors in Covent Garden, to engage in daily singing exercises of a moderate compass. Habitual deep and long breathing widens the thorax even in one year by an inch or so,—a fact of which everybody may easily convince himself. The greater or smaller development of the respiratory organs seems likely to furnish an index of the higher or lower development of the genus and species, not less valuable than that afforded by the brain in its progressive

development. The feebler and less perfectly developed the respiratory organs are in any species of the animal kingdom, the lower it stands in the scale of organisation. By exercising its lungs the horse has been improved up to the quality of the race-horse, of which it may be said, that it is but a highly specialised breathing-machine. In man we find a similar progressive development. The higher the stage occupied by a race or an individual, the more elevated and expanded we find the chest. Vocal artists should attach the highest importance to correct breathing; and the old Italian masters justly said: "A *virtuoso* in breathing comes nearest to a *virtuoso* in singing." Breathing-exercises should be engaged in also by persons troubled with phlegm, and a tendency to congestion of the lungs. These breathing exercises do not only effect a thorough ventilation of the lungs and a clearing of the bronchial tubes from phlegm, but they also facilitate expectoration, and give the sufferer a peculiar feeling of relief and comfort in the cavity of the chest. There is no better stimulant for the circulation of the blood and for the nerves—nay, for the appetite — than an hour's hearty singing in good style. There are some indeed who enjoy a sound appetite though they sing badly; but they ought to consider that by singing badly they spoil the appetites of their audience, and mere benevolence should induce them to make efforts at improving their style.

Singing much is not only an indication of excellent health, but also a preservative of a buoyant general condition.

The following results were obtained by Professor Monassain, in autumn 1878, from an examination at

the St Petersburg Clinic of 222 vocalists, of the age of from 9 to 53 years, special weight being attached to stature and absolute circumference of chest. The relative as well as the absolute circumference of the chest in singers is larger than in those who do not sing, and it increases with the age and with the time devoted to singing. Alcoholism checks the development of the chest. The expansion of the chest, and also the vital capacity of the lungs, are greater in singers than in other persons, and they likewise increase with age and practice. While catarrhal affections of the larynx are of frequent occurrence among vocalists, singers are but very seldom attacked by bronchitis. Very few vocalists die of consumption. Singing being, as it were, a gymnastic exercise of the lungs, is an excellent prophylactic for those who have a tendency to disease of the lungs. The best means for developing and strengthening the chest is the regular practice of singing; and with a view to this object, it is decidedly to be preferred to any other gymnastic exercises.

Singing with diaphragm-breathing has been very properly and successfully introduced in prisons, as a remedy against prevailing rapid consumption. Mountain climbing also induces deep and full inspirations. For vocalists, the climbing of moderate heights or paths of not too steep a gradient is the most suitable. Edinburgh folks should climb Arthur Seat every day, practising slow inspiration, the retention of breath, and slow expiration. Vocalists must abstain from climbing too fast, and thus fatiguing themselves.

Inspiration should always be by the nostrils, especially in an ungenial climate. The air inhaled by the

mouth in quick breathing has not time to become warmed; while, by steadily breathing through the nostrils, air of a higher temperature is introduced into the windpipe. But it is not for this reason only that the nose is the best respirator and protector of the lungs; but also because a considerable portion of extraneous substances present in the air, such as dust, &c., are intercepted by the little hairs which line the nostrils, and are thus retained and deposited on the mucous membranes of the inner walls of the nose. The importance of breathing through the nostrils has never been sufficiently recognised. Vocalists ought in the morning, immediately after rising, to bestow particular attention to their noses. I am in the habit of using every morning as a nose-bath a large tumblerful of tepid water, in which there is dissolved a tablespoonful of table-salt. This water is gently drawn through the nostrils four or five times in succession; and I can earnestly recommend this process to every vocalist. By these means all foreign substances are removed, the air-passages are cleared, and it is a truly agreeable sensation to be able at once in the morning to inhale freely through the nostrils the fresh air. A clear nose is next to a clear conscience; and it is only in the consciousness of this acquisition that man feels himself truly a freeborn being — the lord of creation.

Breathing-exercises, and the proper airing of the lungs, are best proceeded with in the open air, in meadows and fields, in gardens and plantations, where there is nothing to infect the air, while we have conveyed to ourselves that superior quality of oxygen, the ozone, as generated by the vegetable world, and espe-

cially by the foliage of trees, under the influence of the light of the sun.

It has justly been the first concern of the authorities of cities in our days to make provision for an ample supply of fresh pure air, in order to insure a healthy and energetic population; and we see, especially on the Continent, the old city walls, fortifications, &c., everywhere razed, in order to give free access from all sides to the refreshing and quickening air, nowhere to be dispensed with.

The air in the apartments occupied by singers must be kept pure, and ventilation must be carefully attended to.

It has been ascertained that the carbonic acid generated within twenty-four hours by one individual, and imparted to the air of his room, amounts to 20 cubic feet, while the aqueous vapours emitted are equal to $2\frac{1}{2}$ pounds of water. If one breathe through a glass tube into a bottle of pure transparent lime-water, one will find that the water has, after three or four exhalations, turned dim and muddy,—in other words, that the lime has been converted into chalk by the carbonic acid of the breath.

The air of the room must be neither too cold nor too dry. The temperature should not go down below 65° F., and a moderate amount of aqueous vapour is likewise required to keep the air in proper condition. The vocalist may introduce a little fountain into his room, which will impart to the air the necessary amount of moisture, and will also attract the dust, thus purifying the air. In selecting quarters, one should make sure that they be dry, and situated in a quiet open neighbourhood,—the windows if possible to the south and

east. The light of the sun has, as on all other organisms, also on man a most beneficial animating effect. The Italians say: "Ove non entra il sole, entra il medico"—"Where the sun finds no access the physician will enter."

The sun is, and ever will be, the cheapest and most beneficial source of heat and health. The shady side of a street always shows a larger contingent of sick people than the one exposed to the sun.

"A house from which the sun is excluded is like a face without eyes, a head without brains, or a life without an ideal," says Sonderegger.

A not particularly generous, though shrewd enough proverb of the Spaniards, has it: "Give your newly built house for the first year to your enemy, for the second to your friend, and occupy it yourself the third."

A sensible enjoyment of nature, and the constant exercise of our powers, are the best means to preserve the freshness of our voice, to prolong life, and to insure a vigorous old age. A well regulated, frugal, and strict life best suits the vocalist. Let his diet be composed of both animal and vegetable food; and though water is certainly the best beverage, the moderate use of pure claret may be recommended, for taken in small doses it strengthens the voice, and promotes the secretion of gastric juice. To take one's food too hot, and one's beverage too cold, is absolutely injurious to the teeth, to the throat, and to the organs of digestion, and does great harm to the voice. The disciples of Pythagoras, by whom singing was specially cultivated, were vegetarians. Their doctrine was: "Vegetable food makes men meek and wise; it prolongs their life, and is beneficial to the voice." They believed that callous-

ness, brutality, and the wild passions and misdeeds of men, sprang from the use of animal food. I am convinced, however, that the great sage would probably have modified his dictum had he lived to know the poor Irish of the 19th century of the Christian era. The old Italian singers were for the greater part vegetarians; but although the inhabitants of southern countries can more easily live on vegetable food, we are not to believe that they were all salad-eaters. An empty pocket, indeed, compels many a poor chorister to limit himself to vegetables. Yet the well-paid Italian *cantatore* does not despise a good roast as an addition to his salad.

Men in general prefer animal to vegetable food—a fact most clearly apparent from the Old Testament. The children of Israel, despite the severe oppression and the bondage of Egypt, hearkened back to her flesh-pots.

It is true that vegetable food contains the same substances or elements as animal food; yet in vegetable food carbon preponderates to such an extent, that for proper nutrition a larger quantity of food must be consumed. In other words, vegetable food bulks more than animal food of the same feeding power, and it is therefore apt to harm the stomach.

Meat not without fat, eggs, puddings, legumes, &c., are the most nourishing food, while potatoes, vegetables, and fruit are less so. Our constitution can thrive upon food only when the nutritive matter contained in it can be digested and conveyed into the blood in the greatest possible quantity. Accordingly, the nourishing power of an article of food always depends on the degree of its digestibility.

Animal food, especially when a good set of teeth

insures thorough mastication, is, as a rule, more speedily and more completely digested than vegetable substances, which contain many insoluble components.

According to Pettenkofer and Voit, of mixed animal and vegetable food only 12 per cent of albumen is rejected; while, according to Prof. Hoffmann, 47 per cent of the albumen contained in purely vegetable food is thrown out unutilised.

The lark and the nightingale, these most tuneful of all winged vocalists, fare on a mixed diet. History shows that the nations really representative of humanity live on a combination of animal and vegetable diet; and in this respect the following brief colloquy between an English commander and his men in some war against the Spaniards is characteristic enough. Before the commencement of an engagement the general asked his men: "Well, lads! you have got your porter and beef all right?" "Ay, sir!" is the reply. "Well, then, drive to the devil these ragamuffins who live on orange-peel and cold water."

Nature itself teaches us the use of mixed food. Almost all the substances she offers for our sustenance, such as milk, cereals, meat, and so on, are not simple, but mixed feeding-stuffs, composed of elements serving different alimentary purposes at the same time. Man, besides, with his set of teeth and digesting organs, so precisely holds the mean between the carnivorous beast of prey and the peaceable vegetable eater, that Oken most appropriately calls him omnivorous.

The vocalist must vary his diet, even if it be correctly composed. Always the same fare diminishes the appetite, is injurious to health, and thus also to the voice.

One of the principal considerations in the mode of living is due change and appropriate variety in the mental and physical occupations.

Plato prescribes to his countrymen a proper diversity of food; and Plutarch thinks that variety is pleasant, and that what is agreeable to the palate is also more easily digested, if only excess be avoided. *Variatio delectat.*

Hotly spiced dishes, strong drink, and heavy tobacco injure the voice, as I have elsewhere said. It cannot be my task to give a bill of fare for vocalists. In most cases that depends on the length of one's purse; nor must I try to determine the quantity of the good things to be enjoyed. In general, it is a matter of experience and habit what dishes and drinkables are most suitable for one's constitution, and some attention bestowed on ourselves will teach us what we have to choose or to avoid. A proverb says: "One thrives upon what one digests, not upon what one eats." A vocalist that has to put his vocal organs into frequent requisition must fare more liberally than one who does not much exercise them. He who, being rich, undergoes little exertion, but who dines like one who works very hard, will fall a victim to disease. He will then no longer possess houses or mines, for gout will have taken possession of him. He who has, on the other hand, to live on invalid's rations, and must yet do hard work, will become aged before his time, and will surely suffer in his health.

Singers, when taking their coffee, tea, beer, and the like, are often heard to exclaim, "Ah, this is good for the voice!" The burly basso fancies that beer does wonders for his deep notes. The slender tenor, again,

who generally enjoys better pay, and develops a correspondingly refined taste, thinks that champagne will aid him to soar to the high notes. Others believe that oysters will help them to the high C, and thus demolish a dozen or two before they go to the platform.

In connection with this subject, I may mention a few of the many anecdotes which are related in the lives of celebrated artists, but which are frequently mere inventions. Thus, Madame Malibran is reported never to have sung on the stage without having previously emptied a bottle of champagne. The fact was, that she was in the habit of taking an innocent effervescent powder. Of Carlotta Grisi it is told that, before making her appearance, she always held in her hand a sprig of lilac, eagerly inhaling its scent; and that when, one evening, a malevolent colleague stole the talisman, she would not sing at all. The old Italian masters proscribed salt-herrings as particularly noxious; and yet Farinelli would never sing without having first eaten an anchovy. They likewise objected to acid dishes, or anything prepared with lemons. Many Italian singers, however, take a few drops of vinegar or lemon-juice on a morsel of biscuit, believing it to be of special service in clearing the throat. Mattheson (died 1764), a celebrated vocalist and author, says that he knew many singers who, on the days when they had to sing, took for their dinner nothing but a warm drink spiced with fennel. I never heard the performances of those artists, but I am sure they only had insignificant parts to sing; for upon a mere fennel-draught no one would be able to give a proper representation of a hero. In Mattheson's time composers were thoughtful enough to enable

vocalists, by a simple and natural arrangement of their parts, to carry through an opera even with a slender repast. Nowadays the singer must not only carefully manage and skilfully dispose of his vocal power, but he must not fail to take a hearty and generous meal besides. When I had to sing in Italy parts like Marcel in the "Huguenots," Brogni in Halévy's "La Juive," Mephistopheles in Gounod's "Faust," &c., I always found it expedient to fortify myself about four o'clock by a good dinner, not omitting one glass of good St Julien. The operas began at eight, and during the performance I used to take, about nine o'clock, a cup of concentrated beef-tea, with an egg beaten up in it; and I can conscientiously recommend this to singers as an excellent restorative. Many artists take, before appearing, a raw egg, swallowed without beating it up.

The organism requires an increased supply of food in proportion to the exertions it has to undergo. On the evening of a performance singers should speak little, and that with moderated voice. Talking loudly is a greater exertion for the voice than singing. For those who sing in public, it is of consequence that they should make themselves familiar beforehand with the temperature of the platform or stage on which they have to sing; for any sudden change in temperature between the air of the artist or dressing room and that of the platform often causes hoarseness. His work over, the singer should take something easily digestible, and early retire to rest. The bedroom ought to be large and well ventilated. The amount of sleep required, like that of the food to be taken, depends on the constitution of the individual. A

greater amount of work of course implies more sleep; and it must not be overlooked that resting muscles sooner recover their powers than wearied nerves. Manual labourers therefore require less sleep than those that work with their brains. Moreover, the sleep enjoyed by manual labourers is much sounder than that of brain-workers. I am inclined to think that Adam must have belonged, not to the latter, but to the first-mentioned class, seeing that his sleep was so sound and deep as to make him unconscious of that memorable operation to which the world owes the very type of beauty, the ideal of creation. Though the singer does not require to be a philosopher or an erudite bookworm, he is yet a brain-worker, and requires from seven to eight hours' rest. It is absolutely necessary for the recuperation of the nervous and muscular systems, on which the voice necessarily depends, that this rest be taken during the night-time. Keeping late hours, dancing-parties, &c., if long continued, destroy the voice; and in the same way, late reading is to be avoided. Fonssagrives kindly counselled a learned bookworm by all means to go very early to bed; for, as he was not destined to an immortality of fame, it would not be worth his while to exhaust himself prematurely. The injurious effect of night-life on the animal organism is very marked in the appearance of our present generation of stags and roes, compelled to shun the day. Their ancestors, enjoying more undisturbedly a daytime life, used to reach double the size and weight of their present descendants. The comparative safety in which, in former ages, lions and other beasts of prey could rove about in the day-time, sufficiently accounts for their greatly superior size, as

shown by their remains found in caves and elsewhere. The harm done by the hunter to the stature of beasts of prey, in consequence of compelling them to live more in the night than in the daytime, is not of great consequence to us; but it ought to be instructive to singers, teaching them that they must go early to bed, lest their voices should also degenerate in the same way.

A comfortable bed is desirable. It may consist of a firm horse-hair mattress, a light cover, especially for the upper part of the body and the chest, and an additional covering for the feet, which are carefully to be kept warm. The air in the bedroom must be pure, not damp, and of a temperature of about 60° F. In short, the vocalist must arrange his whole mode of life strictly in accordance with his calling, and be particularly careful with his diet, seeing that everything hurtful to his health must also be hurtful to his voice.

Warm baths must be taken mainly for the purposes of cleanliness, cold baths in order to invigorate and harden the frame. The continual use of warm baths is weakening, and naturally also enfeebles the voice.

To a cold bath the Israelites are indebted for their Moses. Had the daughter of Pharaoh not been in the laudable habit of taking cold baths, who can tell how the Israelites would have got out of Egypt, and through their forty years' campaign in the wilderness? It was in a cold bath that Archimedes discovered the law of specific gravity: and in cold baths many a weakling has found something more valuable than the gold of King Hiero's crown — renewed strength. Aristotle recommended cold baths and swimming for the strengthening of the body, and these are to be par-

ticularly recommended in this climate to make the skin and the mucous membranes less sensitive. In spite of all precautions, however, one may catch a cold; and for such cases I here beg to offer a few innocent recipes. In the first hours after the appearance of a cold in the head, let a little bottle with a wide neck, and containing a few grains of iodine or of hartshorn, be put to the nose every four or five minutes. Of great service, also, is the inhalation, through the nostrils, of the steam of hot water. As early as the first century after Christ, Cœcilius Arelianus prescribes for a cold the inhalation of the steam of hot water, and was of opinion that physicians should not prescribe complex drugs where simple means sufficed. In more recent times physicians have ordered Turkish baths at the commencement of a cold, with good results for the patient. Heat must mend the harm done by cold. If the larynx is affected by cold, one must not sing at all: the best remedy is rest, and the inhalation of warm vapours. Inclination to coughing must be resisted, and in the same way one must abstain from clearing the throat on slight irritation. Vocalists who have contracted this habit of clearing their throats, should request as a favour to have their attention called to it when they are observed to indulge in it; for they often unconsciously mar their performances by short coughs. One must, therefore, learn not to give way to every slight tickling in the throat, but suppress the tendency to coughing. Stewed plums and warm milk, with a little sugar in it, will allay the irritation. There are unfortunately singers who say of a cold in the throat, accompanied by hoarseness, that one must sing one's self rid of it. This is

quite as wise as would be the advice to stare at the sun in order to cure an inflamed eye, or to climb a mountain in order to recover from great fatigue.

There are also coughs from the stomach, by which in general those persons are troubled who eat and drink too much, smoke strong tobacco, and are late in rising. The simplest remedy for this kind of cough is to eat and to drink in moderation, not to smoke, to rise early, to breathe fresh air, and to breakfast on milk or fruit, instead of on strong tea or coffee. All indulgence in luscious things and dainties, pastils, sweetmeats, cough-lozenges, &c., however much recommended in advertisements, only spoils the stomach without curing the cough.

Caustic and tannin are to be used only under advice, for the prevention of threatening diseases. They make the membranes rigid, deprive them of their elasticity, and interfere with the voice. When swallowing becomes painful, or is impeded, a towel dipped in cold water, and well wrung out, may be applied round the throat both day and night. If the throat is dry and painful to the extent of a pricking sensation, a piece of gum-arabic, which one allows to dissolve at the back of the mouth, will be found useful. Also ice, taken in small pieces, and allowed to melt in the throat, is much to be recommended.

In more serious cases, especially when threatened with inflammation of the larynx, the advice of an able physician must be sought without delay. Best of all, a specialist should be consulted, who must ascertain by laryngoscopical examination the exact seat and the nature of the disease, and treat it accordingly.

Some fixed hours of the day are to be devoted to

walking in the fresh air, and if possible in congenial company. Dress must be altogether easy, the chest not confined, the throat not muffled up, stiff collars being objectionable, and the waist in no way to be compressed or too tightly laced; and this rule applies to ladies as well as to gentlemen. Dr Niemeyer says: "Thirty deep inspirations taken every morning in a pure atmosphere, and no lacing, will do more for the colour of your cheeks than a tumbler of chalybeate or a dose of iron-pills."

Speaking here of the necessity for avoiding compression of the body, I must direct the attention of ladies to another abuse—viz., to that of confining their auricles or outer ear. I consider it very injudicious to mar the usefulness of this organ, which nature has made to project from the head in order to receive, to reflect, and to concentrate sound, by keeping it constantly covered, or by habitually flattening it by ribbons or bonnets, as is so often the case with ladies.

The outer part of the ear of man appears, both as to size, form, and movableness, to be decidedly stunted, and in this respect nature has been much more generous towards some animals, as for instance the horse, and especially the ass. Nature has, however, compensated us for this deficiency by giving us a pair of hands with which to supply what is wanting to asinine perfection. So we may see in the most ancient Egyptian monuments representations of bandmasters holding their hollowed hands to their ears, so as to fortify their hearing by this expedient. Let therefore the ear never be confined, lest the acuteness of hearing be impaired. When taking a cold bath in the open air, one may protect the ear with cotton-wool, and take

care to dry thoroughly after the bath both the ears and the hair of the head; for, as Prof. Troeltsch observes, damp hair is very injurious to the sense of hearing, unless one be in a warm room. To put a little cotton-wool into the ear may be likewise recommended where a violent shock is to be expected from an explosion or the like; in which case also the mouth may be opened, so as to save the tympanum from the effects of the report. People with weak nerves residing in Edinburgh may observe this precaution when they are out in the neighbourhood of the Castle about one o'clock, when the time-gun is fired.

After the walk one may devote some time to study, and may, later on, engage in vocal exercises. One must never sing immediately after dinner—for singing with a full stomach is both unbecoming and dangerous.

Here I must enter a most decided protest against a custom long established, and much cherished, both north and south of the Tweed,—I mean the fashion of singing immediately after dinner. However charming it may be to listen to favourite melodies after a dainty feast, neither professional artists nor amateurs ought to respond to the call for a song, unless they themselves have been most abstemious in partaking of the repast. A post-prandial song would not be so serious a matter were the meal but a frugal one. As, however, the opposite is always the case where singers are invited, the mischief only becomes more serious. The injury done by singing after a meal lies in the perturbation of the gastric vessels and nerves during the time that they are in full function. One cannot breathe freely, the mucous membranes are engorged,

and the notes one can produce are more or less forced ones. If after-dinner singing be often indulged in, the high notes and all richness of tone are lost. All creatures, even the beasts of prey, rest after taking their food: why should the noble minstrel toil?

One must never sing when one's body is tired, or when one is affected by hoarseness. After a long walk one must first take a good rest; and this must be extended over one or two days after any profuse bleeding from the nose or other loss of blood, or indisposition of any kind. The singer who properly values the gift of voice is bound to pay regard to many things that may even seem to be trifles; and it is not for him to begin to be anxious about his voice at a time when his voice has already, through his fault or through his carelessness, lost its charm and its beauty. Hippocrates long ago said: "Diseases are developed from the daily commission of trifling offences against the laws of health; and it is when these have accumulated their effects, that disease suddenly breaks out."

Experience teaches us that tranquil pleasure, elevating emotions, and the enjoyment of the great works of art, are even more powerfully conducive to the process of digestion than active bodily exercise.

Plutarch said: "The evening is set apart for song and mirth;" and we know that among the ancients it was the custom to hand the lyre round after supper, and to sing to it. When Themistocles, on some of these occasions, confessed himself not to be accomplished in these things, he was, to use the words of Cicero, looked upon as but indifferently educated (*est habitus indoctior*). I doubt the statement that this gifted Athenian did not know how to sing. We know that Themis-

tocles was a wise man. Thucydides expresses great admiration of his prudence, and says that he was very sagacious in divining the events of the near or the distant future. The world-famed victory of Salamis, in which the Greeks obtained so great a triumph over Xerxes, was chiefly the fruit of his wisdom and circumspectness; and it is especially recorded that he ordered the signal for the attack to be given only after the chanting of the pæan or song of triumph. I take it for granted that the great leader did join in this triumphal pæan, but that it was his very wisdom and circumspectness that caused him to refuse to sing after dinner.

They who cannot help singing at dinner-parties ought either to eat very little at dinner, or to dine at a different time, either after having contributed their pieces, or some hours before. Every vocal performance, though it be but a modest one, if it be artistic, deserves encouragement on the part of the company: this is only humane towards the singer. It would, on the other hand, be but acting humanely towards the company, if the lady of the house would allow mere dabblers and amateurs who have no voice, no talent, to rest pleasantly after their dinner, and not call upon them to disturb their own happy digestion and that of others.

The drawing-room air is generally close and heated —for the greater the elegance the more powerful the illumination; and the brighter the illumination the less oxygen there is for the toiling lungs.

The vocalist is surrounded by listeners, and generally stands on a level with them, so that they intercept the free range of the vibrations of the voice, that give

beauty to the tone. The singer should therefore always seek a place, if possible, somewhat raised, and at a distance from his hearers.

He should never sing while sitting, because this posture prevents him from breathing deeply and fully. In sitting we are only able to expand two-thirds of the pulmonary cells. Neither should he sing facing a partition near him, because this makes it impossible for him to observe and control his own voice, and causes him unnecessarily to waste his powers. The singer must stand apart from other persons or objects, in order to allow the tone to swell out unchecked. Let him sing only when he feels himself quite well, and in a proper frame of mind. When in company let him sing little, but well, so as to create a desire to hear him again. He should associate only with intelligent and amiable people: their influence will be of great value for his disposition and his voice. A happy and healthy frame of mind lends to the voice one of its best charms. Dull company, on the other hand, takes away all happy inspirations; and without inspiration there is no good singing.

To conclude, the best, the unequalled preservative of the voice, is a well-ordered and strictly moral life. Careful and well-principled conduct of life is the best guarantee for health. Without good moral principle, the physical constitution cannot thrive, for "morality and health are inseparable as life and body."

LECTURE SIXTH

THE INFLUENCE OF CLIMATE AND OTHER EXTERNAL CONDITIONS ON MAN AND THE HUMAN VOICE

DELIVERED AT THE

MUSIC HALL, EDINBURGH

DECEMBER 20, 1882

"Je thierischer eine Nation ist desto mehr ist sie mit Banden des Leibes und der Seele an ihr Land und Klima befestigt."

"Ideen zur Philosophie der Geschichte der Menschheit."
—J. Gottf. v. Herder

THE INFLUENCE OF CLIMATE AND OTHER EXTERNAL CONDITIONS ON MAN AND THE HUMAN VOICE.

GENERALLY speaking, one understands by the "climate" of a place the kind of weather it is habitually exposed to, the prevalent condition of the air, and particularly its temperature. The temperature of a given place on the globe depends on the way in which the rays of the sun strike it. In this respect, as is well known, the surface of the earth is divided into five zones: the torrid zone, extending on either side of the equator as far as the sun can reach the zénith—*i.e.*, to the tropics; the two frigid zones, situated between the polar circles and the poles, where the rays of the sun impinge at so acute an angle that no very considerable degree of warmth can be produced; and the two temperate zones, between the tropics and the polar circles. In each of these temperate zones we may distinguish a moderately warm and a moderately cold region.

If the surface of the earth were all solid and uniform, the temperature of a place would depend solely on its distance from the equator. As it is,

however, the effect of the sun's rays is materially modified by the formation of the soil and by clouds, and, in addition, warmth or cold are transferred from one place to another by currents of the air and of the sea; and thus it happens that places of equal geographical latitude often have very different climates. Professor Johannes Müller observes: "The climatic conditions of a place being modified by influences widely different and not sufficiently known, we are not in a position to determine them in a purely theoretical way, and can only ascertain them from experience." According to Alexander von Humboldt, the term climate in its most general acceptation denotes all the changes in the atmosphere perceptibly affecting the organs of our body—*i.e.*, temperature, moisture, changes of barometrical pressure, calms, or the effects of winds from different quarters, the degree of electrical tension, the purity of the atmosphere, or the presence in it of more or less noxious gaseous exhalations, and finally the degree of habitual transparence and sereneness of the sky, which latter is of importance not only with regard to the increased radiation of heat of the soil, to the organic development of vegetables, and to the ripening of fruits, but also with regard to the emotions and the whole mental state of man. How great the influence of climate is on man, on his form and stature, on his complexion, his temperament, his moral powers and character, and consequently also the character of his voice, any one may judge who observes the life of one of our great cities, with its large contingent of foreigners from every quarter of the globe.

Plato and Xenophon observe that the air of Athens

and the delightful change of the seasons there greatly promoted the intellectual refinement of the Athenians and their love for art.

Again, Hippocrates said 2000 years ago, that if one viewed the world as it is divided among the different nations, one would find that men, taken on the whole, are like the land and clime they inhabit, corresponding physically and psychologically with the soil. Therefore, says he, as a Grecian of those times, the races inhabiting the colder countries of Europe are full indeed of courage, but comparatively poor in intellectual insight and taste for art, so that they indeed know how to maintain their freedom, but are less qualified for the development of political institutions and for supremacy. Asia, again, is more genial than our country; therefore her inhabitants are more gentle and good-natured, ingenious, and intellectual. But manly courage and capability to undergo labour and fatigue cannot prosper in such a nature, whence most of her nations have been ever and entirely ruled by despots. The Hellenic race, then, living between the two parts of the world on the coasts of Asia and Europe, combines in its character the capacity of both for ruling and freedom, whence there are found among them liberty and sound political institutions.

We certainly see that at present the whole world is ruled over by the smallest part of the world—by Europe. Montaigne observes: "In the same manner as fruits and animals have a different growth, according to their habitat, so also are men born more or less warlike, just, moderate, and docile—here devoted to wine; in other places to thieving and inchastity;

here to freedom and there to slavery; fit for science or art, dull or acute, obedient or rebellious, good-natured or malicious, according to the influences of the district in which they live and move."

They also, like trees, acquire new habits and qualities when they are transplanted from one place to another; which was the reason Cyrus had for not permitting the Persians to leave their inclement and rugged country, and to betake themselves to a genial and level one, saying that a rich and mellow soil rendered men effeminate, and a fertile one made their minds coarse.

On the other hand, Hume, in his Essays on National Character, questions the influence of climate on national character; nor does he believe that men owe any quality or frame of their minds to the air they breathe, to their food, or to the climate. The proof of this he sees in the fact that a comparative study of nations everywhere affords evidence of a mutual exchange, and of the spreading of manners and customs, but nowhere of the influence of air and climate.

Kant also asserts that climate and soil cannot furnish the key to the character of a nation, seeing that migrations of entire peoples have not altered their character in their new domiciles.

In conclusion, I add to these different opinions that of a musician. Gluck, as is known, thoroughly in love with his "Armida," said to Queen Marie Antoinette that the air of France had doubled the energy of his musical genius, and given a wonderful buoyancy to his ideas, so that his compositions had become lofty and angelic, like the queen herself.

High as we may rate the influence of clime and of a genial air, it is always to be borne in mind that the intellect of man, the superior culture of a people, will ever have the power of overcoming to a great extent even the adversities of nature.

An intelligent horticulturist, as he artificially supplies for each plant a climate similar to the one it enjoyed in its native soil, finds the means for cultivating on an area of a few square yards almost all the vegetables we find distributed over the whole earth in the open air. A flower-pot, placed more or less remote from the window, transfers a plant from the sunny heights of Central Asia to the dusk of the backwoods. A more or less liberal, more or less frequent jet of water from a fountain, supplies the poor plant with the daily showers of the calm zone; some other contrivance introduces the arid climate of the steppes of Iran; a hot-air tube raises the temperature to any desired degree, and makes even the palm not miss its original home. The gardener's art in our days knows how to create, even for the rhododendron of the heights of the Himalaya, its Alpine clime, and to make it flower.

Not less than the plant is man subject to the power of the sun and of climate; yet he can cope with them through his intellect, and, with the exception of the equatorial and polar regions, conquer them; and who can foretell what never-resting mind will yet achieve? Moreover, there are countries that enjoy a magnificent climate, and whose inhabitants are yet greatly inferior in culture to those of regions less favoured by nature. Nor has the invariableness of climate, during historical times, prevented more favoured

nations from decaying, or less favoured ones from rising in culture.

The temperature of the earth has, as far as our observations extend, remained the same within the memory of man. In the time of Moses there grew and ripened at Jericho dates, which require an average temperature of 17.9° Cent. In our days the average temperature there is stated to be 18.2°, so that the climate of Palestine has not undergone any perceptible change during a period of 3000 years. So Greece has still the same deep-blue clear sky, and accordingly the same climate, as she had in the days of her glory; and Great Britain has the same depressing mists as in the Druidic times, and yet at present Great Britain is superior in culture, and even in art.

If climate were a very important factor in the development of voice, the land of the Pharaohs, and especially Lower Egypt, ought to supply the greatest tenors and best *prima-donnas;* for Lower Egypt, as is well known, offers, on account of its genial climate, one of the happiest resorts on the face of the globe. We know that the wellbeing of man depends in a large measure on the uniformity of the climate; besides which, the equal distribution of temperature during the twenty-four hours of the day is to be taken into consideration. If such equal distribution of temperature be combined with purity of the air and with an equable amount of moisture in it, a place enjoying these advantages will exert the most beneficial influence on man, and, as a matter of course, also on his voice.

Italy is as little as Germany exempt from cold winds and sudden changes of temperature. Cold and biting winds blow during spring even in Naples, and, owing

to the burning sun, become doubly disagreeable. In Lower Egypt, on the other hand, the summers are never too hot, nor are the winters too cold. A beneficial warmth prevails the whole year round; the thermometer ranges, as a rule, between 19° and 25° Cent. The most splendid fruits of the South, the most magnificent palm-groves and orange-gardens, the ever-serene sky, have a direct and most happy effect on the frame of mind of man. In spite of all this, Egypt has never produced a single singer, although the conditions of life are there so favourable for the lungs, that consumption is an unknown disease.

The oldest seat of civilisation was, according to the sacred records of the Jews, situated in those countries which, according to the concurrent accounts of ancient and modern inquirers, far surpass all others in fertility, —viz., Assyria, Babylon, and Nineveh, from whence the different races of men, and along with them civilisation, have spread to all other countries of the ancient world,—in the first place, towards the Mediterranean, to the lowlands of Egypt, Phœnicia, Asia Minor, and from thence to Europe. Other investigators look upon Egypt, the valley of the Nile, as the most ancient seat of civilisation. Others, again, consider India, and especially the valley of Cashmere, as the original domicile of man, from which the peoples of the earth have issued. The Greeks, dwelling at the confluence of the waters which drained Asia, Africa, and Europe, and therefore the first civilised nation in Europe, entered upon the entire inheritance of Asiatic and African civilisation, which they Hellenised and transmitted to the Romans; as the Romans, in consequence of their universal dominion, imparted their

history to the Celto-Teutonic races; and as these, again, conferred it on the new world, America.

We know, accordingly, that the first germs of civilisation sprang in the most luxuriant regions of Asia and Africa; but although the civilisation of these parts was the earliest, it is far from being the best or the most enduring.

"The only progress," says Buckle, "which is really effective, depends, not upon the bounty of nature, but upon the energy of man; therefore it is that the civilisation of Europe, which, in its earliest stage, was governed by climate, has shown a capacity of development unknown to those civilisations which were originated by soil. For the powers of nature, notwithstanding their apparent magnitude, are limited and stationary. But the powers of man, so far as experience and analogy can guide us, are unlimited."

The northern temperate zone comprises those countries which at present are the seat of the highest culture and the agents of historical development. In this temperate zone, from this very reason, we find the most refined voices; but—and we must emphasise it—not because it has the most favoured climate, but because here we find the highest intellectual faculties,—because here the intellect of man, the fine arts, music and singing, enjoy the most efficient fostering. It is not this or that particular country, then, but the school alone, that determines the character of vocal art.

The variations of temperature, the change of the season, urge men in a moderate climate to work: I would say the climate must compel man to *work*, for it is by work, by activity alone, that his physical and

moral powers are developed. Paradise, as many fancy it, would have left man permanently in his swaddling clothes: he would scarcely have reached the stage of civilisation in which the inhabitants of Otaheite were first found.

The extremes of temperature are injurious to man's health, and, of course, also to his voice; yet even in Spitzbergen, where usually only the bellowing of walruses, the barking of seals, and the screams of sea-fowl are heard, there sounded in 1818, in Magdalen Bay, the merry *chansons* of Béranger as the French corvette La Recherche lay there for several weeks on her way towards the North Pole.

Tropical and very hot countries, such as Nubia, South Arabia, South-western Persia, the coast of the Red Sea, and the Persian Gulf, where the thermometer for months ranges between 48° and 50° Cent., or Chartoum, where it is even higher, and where it does not sink below 30° or 32° during the night, are not favourable to the voice. Of the last-mentioned place, the Arabs themselves, accustomed to heat as they are, say that the earth is of fire and the wind of flame. Such heat, indeed, is fit for lizards, salamanders, and other reptiles, but not for vocalists.

In most striking contrast to this stands the enormous degree of cold of the winters of the frigid zone, especially of Siberia and the north of Greenland. In Jakutsk the temperature sinks to −55° Cent. Recent observations even show the northern Werchojansk, situated on the middle course of the river Jana, to be still colder. The lowest point the thermometer here reaches is −80° Cent., while in summer it rises to 38° of warmth. In winter the breath freezes instan-

taneously, and is changed into fine crystals of ice. Every inhalation produces an unbearable spasm in the throat and the lungs. Who would recommend singing in such cold? Even in the huts of the Esquimaux the voice trembles with cold; and, I think, this will be the proper home of the *tremolo*. The very dogs are peculiar in their ways: they do not bark, as they do in civilised countries—they howl; and we may therefore leave such a clime to seals and polar bears.

Heat retards breathing, and makes man indolent and effeminate. It weakens the entire body, and accordingly, also, the voice-organs. Turks and Arabians sing in a nasal tone and without expression; and remarkably enough, they continue to do so in the same dull and tedious manner when they come into our temperate climate.

It is characteristic that the Moors, too, like all other orientals, recognise as beautiful only a nasal style of singing, or an intentionally produced nasal drawl. Their chants, executed in this manner, are capable, as Naumann says, of moving the people to tears; while they think performances not suffering from this fault, such as our well schooled style of singing, to be quite as unsympathetic and tiresome as we think theirs. The Chinese, too, sing in a decidedly nasal falsetto. It is evident that among all these nations the taste for fine singing has not been developed; for there was nothing to hinder them from adopting more artistic habits, since a nasal tone is not a natural condition, and where it occurs it may be cured, as I have shown in my Second Lecture.

It is possible that heat, as it weakens the body, also

relaxes the soft palate, hindering it from closing the choanæ, and allowing air to pass through these channels and the nostrils, thus producing the nasal tone. But as I have said before, orientals sing no better when they live in our climate. They are wanting in culture and taste, otherwise they might sing with as clear and beautiful a tone as the Italians. The most essential conditions for the formation of noble vocalisation do not lie in the larynx, nor even in the cavity of the mouth, but still higher up—I mean, in the brain, in the intellect. As to the voice itself, I shall have to treat of it further on, and should here only lay stress on the fact that every human individual has received from God a voice with which he may sing according to his capabilities. All races of men, even those of the lowest degree of civilisation, do sing. The very cannibals, the ape-like Papuans of New Guinea, take pleasure in song.

It is maintained by linguists and naturalists that man first sung, and only at a later stage acquired the art of speaking. Here I may acquaint you with a tradition of the Esthonians, which is the following: "The ancient god, seeing that their first abode had become too crowded for men, resolved to disperse them over the whole earth, and, at the same time, to give each of the peoples a language of its own. To this end he put a kettle filled with water on a fire, and ordered the individual tribes to step up to it one after the other, in order to appropriate to themselves some of the notes the imprisoned and tormented water produced in its wondrous song." We see that here a language was conferred upon man, only in the form of the natural sounds of an element.

Darwin is of opinion that our earliest ancestors probably uttered musical sounds before they had acquired the power of articulate speech, and that in consequence of this the voice, when used under the influence of any strong emotion, tends, according to the principle of association, to assume a musical character.

The celebrated philologist, Jacob Grimm, justly holds that language has been the progressive work of man,—a creation, an acquisition of the race, which was sometimes rapidly, sometimes slowly gained, which they owe to the free development of their power of thought, and by which they are at the same time separated and united.

All that men are they owe to God; all they acquire, be it good or bad, they owe to themselves. Language, then, because it was but imperfect in the beginning, and because it but gradually increases in worth, cannot have directly emanated from God, who created only perfect things.

The Creator has endowed man with a soul—with the power of thinking — and besides this, He has given us the faculty of speech,—both most precious gifts: but we only think as we exercise that power; we only speak as we learn how to speak.

It is interesting to see how the question of the origin of speech has from the earliest times excited the curiosity of man, and what means were occasionally employed to ascertain the original language of the human race. Passing over as well known the experiment made, according to Herodotus, with two boys exposed in a desert island, or, to come nearer home, the more convincing one reported to have been made by King James of Scotland in the island of

Inchkeith, I may here refer to a similar attempt made by the German Emperor Friedrich II. (died 1250). A contemporary, the Franciscan friar Salimbene, noted for his bitter hostility to that Hohenstaufen prince, narrates in his chronicle (ed. Parma, 1851) the following: "A second folly of the emperor was, that he wished to learn what language or form of utterance boys would exhibit in advancing childhood if nobody were to speak to them. Hence he gave strict orders to their nurses that they should nurse or feed them with milk, and that they should wash and bathe them without fondling them or speaking to them; for he was anxious to try whether they would speak Hebrew or the language of their parents. But his trouble was in vain, because they all died in their childhood, or rather in infancy; for indeed they could not live without the cheering, the kindly gestures, expressions, and caresses of their nurses and attendants. It is hence that the lullabies a woman sings in rocking the cradle in order to put the babe to sleep are called with us the nurse's charms, wanting which the child would sleep but uneasily and have no rest."

It is a fact that the taste for music is earlier developed in children than the power of attention to words. The same may be inferred with regard to all nations as long as they were in a state of infancy Men in an uncivilised state do not sing as civilised Europeans do: even in the best climate they will roar. The savages of New Holland and the Red Indians in America are, as all uncivilised races, very fond of singing. The Red Indians rhythmically accompany their songs with the clash of big sticks. They sing not only of war and the chase, but also of love. Owing to the continual

exertion required by this fatiguing rhythmical manœuvre, their voices shake, and they incessantly gasp for air. They pierce their noses, and adorn them with bones and reeds; and it may easily be imagined what touching effect a love-song performed under these conditions must produce.

The singing of uncivilised people is the most strained, and, therefore, the worst. The negroes especially are very musical, and are great lovers of song; but owing to the very low grade of civilisation in which they live, they like only noisy music, and constantly accompany it by dancing, which always prevents a beautiful formation of tone. In Senegambia there even exists a hereditary caste of singers, who exercise a not unimportant influence by means of their songs of abuse or of praise. In Dahomey the singers are the preservers of the historical traditions of the state.

The Mongolians likewise accompany their songs with solemn dances, and we find music and singing forming a part of their religious and secular festivals. They are said to have particularly cultivated music, and to have employed special means for the strengthening of their voices. Travellers discovered in the vicinity of Agra, on the river Soonria, the tomb of the great national musician Tensien, to which the inhabitants make pilgrimages, in order to chew the leaves of the great tree overshadowing his grave, as they believe thereby to acquire strength of voice.

Although all uncivilised races do not fail to practise singing very diligently, an artistic performance is never heard among them. They spoil their voices by shouting; and because of their strained use of their vocal organs, they very soon sing in a hoarse and

tremulous way. Being untutored, they often perform songs figured in quarter-tones, and other still less musical intervals, which we must call howling, rather than singing. That it is merely the absence of cultivation which prevents them from adopting a better style of singing, we clearly see from the performances of the genuine Christy Minstrels. I lately heard a negro belonging to this association, whose soft tenor voice really surprised me, and his simple and tasteful rendering of English ballads was not less remarkable. We see from this that we must not deny to any individual the capability of culture, lest we should place ourselves in the position of some deeply read persons, who unfortunately forget that they too had once to begin with spelling. The low grade of civilisation in which the negroes live is for by far the greater part the result of slavery. They were not men with the rights of men; they were articles of trade, and low-priced ones, indeed. As late as in the year 1861, the legislative body of California passed a resolution by which a white individual, convicted of having shared his dwelling, or having lived in wedlock with an individual of the native Indian or of the negro race, should lose his rights as a citizen, and become as little eligible for a place in the public service as a person of colour.

Physiologists assert that the average weight of the brain of a European is 1408.8 grammes, while that of a negro amounts only to 1316. Science at the same time shows that, owing to continued greater use, the right arm of man increases in strength and volume, not in some individuals only, but that also this preponderance over the left arm is inherited in such a

manner, indeed, that now children are generally born with a stronger right arm. May not, then, the brain of the European, by larger use and correct training, have been more strongly developed; while the brain of the negro, checked in its functions for so many ages, remained inferior, just as the left arm, which in the course of time has become the weaker one? Broca thinks that since the time of Charlemagne the average brain capacity, as estimated by direct measurement, in France has markedly increased. Most of the now highly civilised peoples of Europe were, in the times when ancient Greece saw her brightest days, scarcely superior to the present negroes and Mongolians.

In the markets of Roman cities the subject Celts were sold as slaves—the intellectually inferior and despised slaves of their haughty conquerors. But we see that the evil estate of the race in those times has not prevented their descendants in Scotland, Wales, and Ireland from attaining to a moral and intellectual elevation second to none; and even from marching "*à la tête de la civilisation*," as their kindred, the French, claim to do. To-day every Scottish village has its vocal association, while in not a few the works of the great masters are creditably executed; and it is a proof of the progress the country has made in the cultivation of the art of music, that she can name as her own so talented a composer as Mr A. C. Mackenzie, or so gifted an interpreter of pianoforte music as Madame Helen Hopekirk.

The uncouth Laplanders and Ostjacks are near relations of the civilised Hungarians. Hungary has in recent times sent forth several vocalists of note, and

voices there are thoroughly sonorous, tuneful, and refined.

I would beg leave here to enter more particularly on the subject of voice. By voice we understand the utterance of the organ in its natural state. It is the mere material as still wanting cultivation. Everybody possesses a more or less powerful voice; but a noble voice is a voice refined through art, through taste, and through careful study. The vocalist's ideal must be recognisable in the tone itself. The singer, therefore, because he has to represent in song every shade of human feeling, must above all be a person of high moral and intellectual culture. He must nurse and stimulate his imaginative powers by the study of poetry and history, keep his mind in that lofty frame required for the expression of great dramatic emotion, and must impersonate the very character and disposition of the individuals he is to represent. How much refinement is demanded for the rendering of even the simplest of Schubert's songs? Indeed the singer must possess a real enthusiasm for the great and sublime, and that love for the true and the beautiful which flows from a high moral ideal.

The material development of the organ of voice is most manifest at the period of the change of voice; but that development which is governed by the intellect and the emotions is not of a material character, and requires to be strengthened and confirmed by education and controlled by culture. The more vigorous the moral sense, the more lively the delight in all that is good and the dislike for all that is bad. The activity of our moral sentiments grows with the conception of great ideas and enthusiasm for them: such

ideas and such enthusiasm result from substantial culture. The affection of our innermost soul thus arising is, with the speed of lightning, imparted to the nerves, and through these to all the muscles designed for the audible external manifestation of our inner life. We therefore repeat: Let the singer earnestly strive after intellectual refinement, through the study of classical works, and through intercourse with men of culture and of character. Only then will his singing impress others as a revelation of intellect and of depth of soul; for the vocal organ, the larynx, cannot express anything not already realised in the mind. According to Aristotle, the voice is a sound the result of an intellectual impulse, aided by the imagination, and in no small degree by the heart; and I believe that only tones so produced can speak to the heart. Although a tone whose beauty is merely material, and does not spring from the life or the feeling of the singer, may be found to give pleasure, it can never kindle the emotions or inspire the hearer.

The difference in the vocal character of northern and southern nations is easily recognised in uneducated voices. A mild and more uniform climate, such as prevails in southern countries, imparts to the voice more softness, richness, and compass. The northern nations, on the other hand, have voices which, though powerful, are rarely so soft. They lack that indescribable limpidity and sweetness we perceive in the southern voice, even when used in speaking. Besides, the northern voices are more limited in compass. In the northern races the skin of individuals living much in the open air is dry and rough to the touch, while it is soft and velvety among southerners. In the south

the vocal organs are, like the whole body, not so robust in their structure as those in the northern countries, and this is in accordance with our experience, showing the vocal chords of tenors and sopranos to be thinner than those of basses and altos. So also are tenors and sopranos proportionately more numerous in the south than in the north. During a few decades, at the end of the eighteenth and the beginning of the nineteenth century, the little town of Bergamo alone produced seven celebrated tenors: Vignoni, who sang in Paris in 1789; Giacomo Davide, born 1750, and for forty years the marvel of Italy, France, and England; Giacomo Bianchi, Gaetano Crivelli, Andrea Nozzari, the world-famed Rubini, and Marco Bordogni. Southern Italy, on the other hand, is rather deficient in deep voices, especially in deep basses, and, strange to say, the few she produces enjoy no popularity.

Russia, again, is noted for its choir-singers. They sing the lowest contrabasso notes with extraordinary volume of sound, and with the greatest ease. I must confess, however, that I never particularly admired the quality of those tones. Nature has not in that country been so lavish with high voices. In Scotland, again, deep voices predominate, a fact one can observe in all vocal associations. Yet tenors would be less rare, even in northern countries, if falsetto were more correctly cultivated. I was struck with the fact that the coal-carters in Edinburgh and Glasgow pitch their powerful "oa" on C and C-sharp, but rarely on D and E. In Venice and Milan, on the other hand, one hears vendors cry their wares on D, E, and F.

Richness and softness of the voice depend not only

on climate, but also, and not less, on correct treatment, on the mode of living, and mainly on the diet. Highly spiced and over-rich dishes, and, in the same way, spirits and all strongly alcoholic wines, injure the voice, by depriving it of its limpidity and brilliancy, and by rendering it harsh and hard.

It is true that the vocal chords are never touched by anything we swallow, for we know that the epiglottis affords the necessary protection to the larynx at every act of deglutition. Yet the upper portion of the channel, by which swallowing is effected, together with the whole cavity of the mouth, forms that portion of the human vocal organ which is represented in wind instruments by their lower widening portion, and which lends to the voice mellow richness and resonance. If the mucous membrane lining this supralaryngeal tube be exposed to, and be kept for a time in contact with, piquant dishes and sharp liquids, the mucous glands are irritated, and are at first contracted, so that for a time there is a deficiency in the necessary quantity of secretion. The secretions of the mucous membrane taking a part in moistening the membranes of the larynx, and especially of the vocal chords, it is, according to Professor Mandl, possible that the want of moisture thus brought about affects the vocal chords, and results in the voice becoming affected. Subsequently, however, increased secretion from the mucous glands takes place, which, if it extends to the mucous membranes of the larynx, may cover the vocal chords, and thereby hinder their normal vibrations. On the whole, the voice will suffer, and harsh and dry tones will be emitted, when the mucous membrane of the supralaryngeal tube is no

longer in its normal condition. A noble tone can be produced only so long as the vocal chords are moist, and can sufficiently approach each other. Dryness of the vocal chords and of the cavity of the mouth thus makes the voice hoarse. It is not difficult to convince one's self of the correctness of these statements, and it would be well if they were more generally believed in. Dr Klencke even enumerates dryness of the cavity of the mouth and of the lips as one of the causes of stammering, which is easily enough understood, seeing that dryness impedes the motions of the tongue and of the lips. Great attention should therefore be paid to the maintenance in a proper condition of the mucous membranes, and all the more so, that the mucous glands are not, like the muscles, and even the nerves, subject to the control of our will. Darwin observes: "The glands are wholly independent of the will, and a man suffering from grief may command his features, but cannot always prevent the tears from coming into his eyes. A hungry man, if tempting food is placed before him, may not show his hunger by any outward gesture, but he cannot check the secretion of saliva." Every vocalist, therefore, who values his voice will be cautious in the choice of his food, and observe a proper *régime*. Abbot Gerbert, in his work 'De Cantu et Musica Sacra,' reports of the famous Italian church-singers that they treated their voices with great care, and, in order to keep them clear and true, lived on vegetables alone for the day previous to their appearance.

The inhabitants of southern countries are moderate in eating and drinking. "Olives, lettuce, and radishes are cavaliers' fare," says a Spanish proverb. The

Italians, too, are very frugal, and live mainly on vegetable diet. They do not take strong drink artificially to excite warmth; indeed, the sun more than abundantly does this work. Fresh water or a small glass of Barbera to their polenta or macaroni satisfies them. The climate naturally influences the choice of food; for this special reason, that higher temperatures diminish the wear and tear of the tissues of the body. It is on this account that during the summer, or while sojourning in southern countries, we require a less nutritious diet than in winter or while living in northern climates, where not only do we find that the food consumed must be both greater in quantity and more nourishing in quality, but also that a liberal supply of fat and carbo-hydrates is requisite for the evolution of greater amounts of heat within the body.

An Esquimaux is said to be capable of digesting eight pounds of fat walrus meat in one day. Such liberal diet supplies him with the heat necessary for resisting the severe cold.

Men in tropical countries live upon substances that develop only a small amount of heat in combustion. They, besides, consume as little albumen as possible, in order to keep down the conversion of protoplasm, and along with this the absorption of oxygen. The Hindoos live mostly upon rice, the southern Egyptians on dates and other fruits, and the Mexicans on maize and bananas.

The fruit fed upon by the inhabitants of southern countries contains about 12 per cent of carbon, while the quantity of that element contained in blubber amounts to from 66 to 80 per cent.

"The inhabitants of southern countries keep them-

selves cool," says Pettenkofer, "by consuming little fuel—that is to say, by eating little." The moisture of the air, too, is an essential item in the climate of a country, and in the food requirements of its inhabitants. Dry cold, even at a temperature of as little as 25° Cent., can, with proper clothing and feeding, be well endured without injury to health. The arctic explorer Weiprecht says: "I have been suffering from bronchial catarrh and colds in the head these twenty years, to such a degree that I myself and others thought I was consumptive. During this time I was twice icebound in high arctic regions, and on both occasions I got almost entirely rid of these affections, while they each time returned as soon as I again reached the regions of civilisation."

Even Italian singers enjoy excellent health during the opera-season in St Petersburg. My friend, Giovanni Vaselli, from Rome, baritone of the Imperial Opera, even commends the climate there. It becomes dangerous only when a strong wind begins to blow, and also when a rising temperature is accompanied by fog. In either case a rapid cooling of the body takes place, and most so during a fog, because the damp settles in one's clothes, rendering latent a greater amount of heat than the cold air does, and suspending the porosity of the texture one wears. A cold climate like that of the coasts of the German Ocean and of the Baltic requires an ample supply of heat and alimentary substances such as will produce it,—those, namely, which contain much starch, and especially much fat. Taken in excess, these become hurtful; but enjoyed in moderation, they are very useful.

It is but a bad habit of the people dwelling in these

parts that demands, besides such food, the use of alcohol and of tobacco. Yet nothing does more injury to the voice than the tavern and the tobacco-shop. Alcohol and nicotine are the destroyers of the body and the soul, and so, of course, they destroy the voice also.

That the use of alcoholic drinks is merely a bad habit, is proved by the fact that thousands of people live in the regions mentioned, and lead a happy life up to old age, without taking any alcohol.

Good tobacco, enjoyed in moderation, is not so injurious indeed to persons with plenty of blood; but even the best tobacco is not to be recommended to vocalists.

A damp and warm climate, such as that of the borders of the Ganges, is unwholesome and injurious to the voice. Dr Sonderegger remarks: "One does not sojourn with impunity beneath palm-trees, and one pays for the magnificence of tropical vegetation with tropical diseases."

The inhabitants of a dry and hot climate, like that of the Sahara, are much more active and vigorous than those of the moist and hot coasts of the Indian Ocean and the Yellow Sea, where especially immigrated Europeans soon sink into indolence, and present a certain want of sonorousness in their voices.

Moreover, physical and moral causes must be assumed for the difference in the vocal character between southern and northern races. As one of such physical causes, I may first mention the *dolce far niente*—the sweet doing-nothing of the Italians. I beg, however, not to have it inferred that idling is conducive to the development of the voice. On the other hand, labour which demands much physical exertion as well as con-

tinuous mental strain is injurious to the voice. Gymnastics, most beneficial as they are, must not be carried to excess, and not even to fatigue, by the vocalist. They should be confined to the kind of exercise described in Dr Schreber's work on 'Chamber Gymnastics.'

The little the Italian requires for his sustenance the soil readily yields almost everywhere: it scarcely demands the half of the labour needed in the north for the production of the same results as to the physical life of the individual. Thus the Italian feels himself more independent of toil, more free than the northerner. He more readily conceives the idea that he may exist for something better than for spending his life in constant drudgery and a kind of torment. One must not, however, taunt the Italian with laziness. A glance at his gardens, fields, and meadows, which, especially in Lombardy, are mostly under excellent irrigation and drainage, will suffice to convince one of the active industry of the people. Yet it is the splendid soil, yielding everything in great profusion with but little labour, that materially contributes towards the formation of the national character. If I assume a moral cause for the differences between the voices in southern and northern nations, I believe that I am warranted in doing so, seeing that the voice, as the most direct index of the inner life, must necessarily be in harmony with the national character. I have before said that we may perceive the state of the soul from the tone of the voice.

The people in the south are of a much more emotional and impressible nature than those of the north. In the former it is more a sensuous, in the latter an intellectual, beauty that we perceive in the tone of the

voice. People so demonstrative as the Italians have at most hours of the day something at heart that would fain be out: they must say it or sing it. The Scotch, on the other hand, are more cautious and reticent. They, too, are fond of singing, but they seldom sing impassionedly

Italy's serene deep-blue sky, the magnificent charming tints of the landscape, the striking outlines of her mountain-ranges, the ever-varying contrast of her hills, and her lovely luxuriant valleys, her venerable relics of antiquity, the lofty creations of art that everywhere surround the Italian, must exercise a beneficent influence upon him, and put him into a certain elated frame of mind. But the principal reason for his vivacity, and for his rapid development of body and soul, we must seek in the warm climate, in the power of the sun. The more intensive the light, the sooner every living thing comes to the height of its development. Hence it is that, approaching the equator from the poles, one finds the maturity of man at an ever earlier stage of life, his cast of features more and more decided, his temperament more distinctly marked, the action of his nerves more intense

So great is the influence of climate on the voice, that it strikes every observer how the mutation or breaking of the voice occurs in southern countries four or five years earlier than in colder regions. At the period of mutation the voice becomes perceptibly more rough, and to economise it at that time is the first condition for its preservation. The individual must during this time speak in moderated tones, and strictly avoid straining his voice even in speaking.

Between the sixth and the eleventh years of life the larynx seems to undergo but little change in its general structure, which then is pretty much the same in boys and girls, although already, previous to attaining maturity, the larynx of boys presents somewhat longer and firmer vocal chords than that of girls. During mutation, all the organs of the larynx are reddened, the vocal chords become thicker and longer; at complete maturity all the breathing-passages have acquired their individual forms and proportions, and retain these during the rest of life. No amount of singing-lessons, says Professor Merkel, and no kind of exercises for the larynx, can add a single millimetre to the length of the glottis, or to the cartilages connected with it, although such vocal gymnastics may very considerably influence the nutrition and the skill of those organs.

During the breaking of the voice, the female larynx grows more in an upward direction than it does in breadth and depth; all its parts remain more delicate, flexible, and slender than in the male, in which the cartilages become proportionately harder, stouter, and more angular. The female vocal chords are shorter, thinner, and narrower, but also show more tension than the chords in men.

According to Professors Merkel and Luschka, the male larynx is by one-third larger in volume than the female one, and has six times the size of that of an infant. According to Richerand ('Recherches sur la grandeur de la glotte'), the difference in the size of the larynx is not very appreciable during the age from 3 to 12; and the diameter of the glottis in particular remains pretty constant at a length of about

five-twelfths of an inch. About the time of maturity, the growth of the larynx progresses very rapidly, until it reaches its full size; the glottis takes less than a year to increase in the proportion of 5 to 10 in the male, and of 5 to 7 in the female larynx. Previous to this period, sex seems to be immaterial, both as to the size of the larynx and as to that of the glottis in individuals of equal age, so that the difference between the male and the female larynx becomes a decided one for the first time when the voice has settled. Then the length of the glottis is, according to Joh. Müller, 18·5 millimetres in men, and 12·6 in women; according to Harless, it is respectively 17·5 and 13·45 millimetres. The latter physiologist gives the length of the glottis in a girl of nine as 9·5, in a boy of fourteen as 10·25 millimetres. Here, too, we find a confirmation of the fact, that during the breaking of the voice the female larynx changes less than the male one.

Heat, or the sun, remains the source of life of our physical frame, and one may say that it is the sun that has set astir and sustains our entire civilisation; and this brings us back to Italy again.

The Italians are before other nations endowed with a lively sense of form and colour, of symmetry and beauty, and, especially, with a sense of beautiful sound. This is the fair gift, superabundantly granted to them by the Creator. The sense of beauty which in other nations has been given but to a few individuals, appears in Italy as the possession of the entire people, down to the least apprentice-boy. The many works of art, and the beauties of nature and of human form, which surround the Italian at every step, have,

as I said before, been most conducive to his happy condition.

Plato wanted to make it the mission of the arts, of the national games, and of the stage, to surround us, if possible, in all external objects, with images that continuously tend to draw our eyes towards true beauty. The habitual contemplation of such images, he says, would become a kind of instinct, and urge our mind to make all our energies conform to the order and harmony shining forth from the divine prototype of beauty. So is Italy the home of fine arts. Painters and sculptors seek, and will continue to seek her, for the study of the master-works possessed in equal profusion by no other country. The musical terms in constant use prove that Italy is also the birth-land of music, though it must be admitted that her music is wanting in the depth and earnestness that characterise German music. The Italians are an easy-going nation. Metaphysical speculation they leave to German philosophers. The predominance of melody and rhythm over harmony, mainly distinguishes Italian from German music; and this explains why vocal has always enjoyed greater favour in Italy than instrumental music. Concerts for the latter, for chamber-music, and evenings devoted to string-quartetts, are things there of exceedingly rare occurrence. The whole musical life centres in the opera, which, above all, must be melodious, and not by any means scientific. Yet we may point out with Jahn that, with the exception of the Protestant North German composers of church-music, all the great German composers of the last century made their studies, and laid the foundation of their fame, in Italy, though they—

I mention here Handel, Gluck, and Mozart—possessed a sufficient amount of original power afterwards to shape their own independent ways. Liszt says, that as *esprit* is said to hover about the streets in Paris, so in Italy happily invented melodies are, so to speak, in the air; they insinuate themselves incidentally, and pleasingly coax the ear. I believe that the melodious nature of the Italian language itself greatly promotes this musical fertility. For if well spoken, it almost rivals song; and certainly there is no language in the world adapting itself to music with equal ease and grace.

It is true that one can sing in any language; yet there are languages that afford advantages for the formation of tone, and others, again, that create obstacles to this. One of the most important features of the Italian language, in this respect, is the fact that most of its words terminate in a pure vowel. This is a great advantage in singing; for the richer a language is in clear vowels, the greater will be the success in tone-formation attainable under proper tuition; the greater the predominance of consonants, and, especially, the greater the proportion of words which terminate in them, the more difficult is the task. Gutturals are very obnoxious for formation of tone. They play, for instance, a very prominent part, and prevent the formation of a noble tone in the Semitic languages. One of the Welsh bards, in reciting to a friend a poem in his national tongue, pointed out, as one of its excellences, the fact that it contained hardly any gutturals, but, on the other hand, abounded in resounding vowels; and it is well known that the cultivation of beautiful solo and choral singing is quite a specialty of the people of the principality.

The monosyllabical words of the Mongol Chinese do not favour the development of good singing; and that nation in her exclusiveness has never furnished a vocal artist. Their choral-singing, too, is bad, and educated and vulgar alike sing in a high nasal drawl.

The South African races produce, in speaking, clicking or clacking sounds with their tongue; those in the North-West, chuckling, gargling, and grunting sounds, which are rather difficult, if not impossible, for European voices, and would certainly discourage even our greatest vocal artists. All languages have their peculiarities; and there exists in particular a great difference as to the wealth of sounds in each. While Hindustani has, by the adoption of Sanscrit, Arabic, Persian, and Turkish words, raised its store of consonants to 48, of which 39 are original Sanscrit sounds, English has only 20, Greek only 17, the Polynesian languages have at most 10, and some Australian languages even as few as 8. The *f* is wanting in the Finnish, Lithuanian, and Mongol languages; the *d* does not occur in the Chinese, Mexican, and the Peruvian; the *s* is absent in several of the Polynesian group, and is represented by a hissing *h*. All these peculiarities affect the singing; for we know that the vowels are not of equal weight, owing to the different amount of breath required in producing each. We likewise know that different classes of consonants require a different amount of breath. So, for example, *t*, *p*, and *k* require more breath than their relatives *d*, *b*, *g*, because the former demand a stronger aspiration.

There are languages in which the *h* plays a great part, and is, by badly trained singers, inserted between each two notes, and thus causes a great waste of breath

in singing. Even more modern singers fall into this fault, and their *coloratura* singing is then marred by aspiration. Of not less consequence is the proper treatment of the *r*. No Chinese can utter it; they substitute *l*, and so call America *Yamelika*. The *l*, again, is foreign to the Zend, and to some of the Japanese, American, and African dialects. Even to some Europeans the *r* is troublesome. Demosthenes, who has got credit for every imaginable and unimaginable defect of articulation—perhaps to encourage stammerers and lispers by so bright an example of elocutional energy—is said, by Cicero, to have been unable to pronounce the *r*. Alcibiades, too, always pronounced *l* for *r*, and thus said *kolax*, a sycophant, for *korax*, a raven. Neither could the celebrated Madame Schröder Devrient manage the *r*. Some vocalists enunicate the *r* from the throat; but this mode of uttering it is disagreeable, and must be avoided. Singers, therefore, must carefully practise the lingual *r*, which is done by putting the point of the tongue into a proper position relative to the teeth and the palate, and by forcing against it a strong current of air, so as to cause a purring vibration.

The Hurons have no labials—*i.e.*, no *b*, *p*, *f*, *v*, *m*, *w*, whence they cannot say papa nor mamma—the words common to all other languages, and even first of all acquired by young children.

When an attempt was made to teach the Mohawks how to pronounce words with *b* or *p*, they declared that they did not wish to make fools of themselves by shutting the mouth in speaking. Max Müller observes: "The Mohawks are by no means the only race who, in talking, keep the mouth constantly open, and

refrain from articulation of the labials. They share this peculiarity with five other tribes, who together constitute the so-called 'six nations'—Mohawk, Seneka, Onandango, Oneida, Cajunga, and Tuscarora."

Many of the English and the Scotch, especially the ladies, do not sufficiently open the mouth in singing, in consequence of which the tone of the voiee is too close and obscure; in other words, the tone is too deep in the throat. I am not sure whether the so frequently sullen, and often "raging" skies, the mists, and the cold damp air, by inducing a habitual closure of the mouth, produce this result, or whether it is the belief that it is not becoming to open the mouth too wide. A certain inexpressiveness, coldness, or, I should perhaps say, a certain reserve, is also observable in the style of singing affected by ladies in this country. They do not open their mouths, and they do not open their hearts—both most important organs. But patience! though their voices be cool, their hearts are warm to their family circle. It is certain, moreover, that the language has its share of responsibility for this faulty position of the mouth. Even here a good method of instruction in the art can effect a great deal, and even achieve the highest results, as is proved by the style of many eminent British vocalists. For the cure of the habit of keeping the mouth too much closed, I would recommend that the student should place a slice of cork, of the breadth of a thumb, between the front teeth, and to sing, *with a steady position of the tongue and mezza forte*, for ten minutes daily, first on the vowel *a* (ah), and afterwards on words containing the vowels *a* (ah), *o* (oh), and *e* (ā). The student must aim at the greatest possible distinctness of pronuncia-

tion, which, of course, he will find rather difficult with a cork between his teeth. Yet the purpose will be served by the windpipe being relieved of the pressure usually imposed upon it; the voice, before choked and confined in the throat, will be set free and be brought forward, so that the note will strike at the spot stated by the old Italian school of Bernacchi to be the only proper one—viz., the hard palate, right above the front teeth. Every singer whose position of the mouth is faulty, must have recourse to that little slice of cork, and after even a short time the tone will be originated in the throat without being impeded, and it will flow forth in full freedom. Should not a nation that puts so high a value on freedom aspire to give more freedom to the herald of freedom, the voice?

Composers, too, should be more particular in their selection of words for their songs, and keep in view the conditions of pure vocalisation. Nor should poets, writing for musical composition, omit to pay proper regard to this point. All non-Italian vocalists ought to study Italian, for it is the proper language of song. The Italians, much more so than other nations, are impelled to pour out their sentiments in song, and they feel, like the singing-birds, great pleasure in their own vocal utterances. The place of honour in the history of music is justly due to this nation of songsters. Yet I must here at once emphasise the fact that they may rest their claim to such a distinction, not in the first place on their climate, or even on their language, but principally on the care which they have always bestowed upon the art of singing. The very first fathers of the Church in Rome looked upon singing as the most powerful means to win the

pagans to the true faith, and to keep together the persecuted Christians.

Clemens Romanus, who is held to have been a companion of St Paul, made it a rule that the psalmist or precentor was to intone the psalms, and that the presbyters of the church were to be at the same time the directors of the choir. Cyril records of St Theodosius that he had been useful to the church of his native place as its precentor from boyhood; and St Nicetius decided upon having all the boys of his diocese trained in singing as soon as they began to speak. Regular seminaries for singing existed first in Rome. Pope Sylvester I. founded the first singing-school there in the year 314. Another was founded by Pope Hilarius in the year 461. St Ambrosius, made bishop of Milan in 374, did very much for church singing; but of the greatest importance were the provisions made for it by Pope Gregory the Great (590-604). Not less worthy of mention is Guido von Arezzo in the eleventh century. He travelled from place to place, and gratuitously taught both poor and rich the art of singing. A truer and more elevated taste for vocal music was created in the sixteenth century by Palestrina. What he was to the earlier Italian singing-school, Francesco Durante was to the modern. Artistic singing proper was zealously promoted by the celebrated schools of Francesco Pistocchi and Antonia Bernacchi.

It was Gregory the Great who made it an express law that no one not an expert in singing should be ordained priest. The Gregorian chant in this way took such a hold of France, Germany, England, and all Christendom, that in divine service it was con-

sidered the sole musical expression of devotion. Pope Gregory sent Augustinus, accompanied by a large number of assistants and singers, as a missionary to England; and it was this man, as well as the illustrious harper, King Alfred, at the end of the ninth century, who disseminated genuine singing all over the British Isles. Charlemagne did the same for France and Germany. The later popes, too, showed much devotion and distinguished attention to the Gregorian school of singers in Rome. For not only did the singers enjoy many distinctions, such as that they were eligible for the post of chamberlain, but their influence grew, through the popularity they universally enjoyed, to such a degree that their president (*primicerius*) obtained a vote in the election of popes, and ultimately no less than five popes proceeded from among the members of this school (Sergius I., 687; Gregory II., 715; Paul I., 757; Stephen III., 768; and Sergius II., 844).

The demands made of these church-singers increased with the growing efficiency of the Roman school. A singer was to excel and to shine not only by his voice, but also by his accomplishments, so that he might refresh the hearts of his hearers by the sweetness of his song. His voice was not to be harsh, hoarse, or shrill, but it must be sonorous, sweet, clear, and resonant, and both tone and melody were to be in keeping with the sacred character of the service.

The following were the conditions of reception in the school. The singer's body must be strongly built and well proportionate, the chest broad, the lungs sound and strong, the neck muscular, the palate well arched, the tongue well shaped, and the lips not too

thick. The soft palate and the epiglottis were not to be long, and the teeth must be complete. The voice must be rich, powerful, of a metallic ring, agreeable in tone, uniform, and of large compass. Having fulfilled these conditions, the aspirant had to submit to from six to eight years of earnest studies.

If in Germany, which in our days is leading the fashion in matters of music, critics and writers on music speak in derogation of the Italian style of music and singing, they do it wrong. Italian music will always be melodious, and will find lovers everywhere; and the old Italian school of singing will for all time to come remain the only correct one with regard to formation of tone. German critics ought to be mindful of the words of Johannes Diaconus, who reports the following of the Teutons: "Among the nations of Europe it was the Germans that would not easily grow weary of learning the artistic method of singing. On the other hand, it was a fault of theirs not to sing in proper time. From light-mindedness they mixed up some of their own songs with the Gregorian Chant. Another evil is their native barbarous disposition. They cannot sweetly and gently repeat the modulations they have heard. On the contrary, their drunken hoarse throats always break out into an unartistic natural roar, and produce sounds resembling the rumble of a heavy cart rolling down from the mountain-side, so that the audience are stupefied and bewildered rather than moved and edified." We know that Charlemagne often imported expert singers from Rome to instruct the monks in the monasteries. A decree of his, of the year 789, has the following: "The monks are to adhere entirely and properly to the Romish chant in the

service of the mass, as was strictly enjoined by our father King Pepin, of blessed memory." The synod of Aix-la-Chapelle, of the year 802, required of every priest that he should know how to sing according to the Roman rites. Besides, the monks had to give instruction in singing in their schools, and they were bidden to accept not only the children of people of mean degree, but also those of nobles, and to instruct them in the psalms, in the knowledge of the notes, and in singing. In like manner the councils of Aix-la-Chapelle, of the years 803 and 816, ordered the establishment of singing-schools in suitable localities. But in spite of these provisions for good schooling, the Germans, as Forkel tells us, were not capable of producing proper *grupettos*, *appoggiaturas*, and *mordents*, and, on account of the natural roughness of their voices, they broke the notes in the throat. The Monk of Angoulême relates: "When the Emperor Charlemagne solemnised the feast of Easter at Rome, a contention arose between the Roman and the Gallic singers. The Gauls said that they sang better and more beautifully than the Romans; these, on the other hand, maintained that they executed the chant in the correct fashion taught by Pope Gregor. As to the Gauls, they were singing in a corrupt way, and bungled the natural course of the melody. When the quarrel was brought before the king, the Gauls, who thought they would be backed by Charlemagne, abused the Roman singers. The Romans, proud of their tradition, upheld the teaching of St Gregor against the boorish singing of the Gauls, and called them ignoramuses, clowns, and dunces. Seeing that the altercation would not come to an end, the emperor said to his choristers

"Judge for yourselves,—where is the water purer and better, at the source of the brook or in its lower course?" They all answered, "At the source." "Return, then," cried Charlemagne,—"return to the source, to St Gregor, whose chant you have obviously spoiled." And still to-day one may exclaim to bad singers of every nation, "Return to the pure spring of the old Italian School of Bernacchi." And if to any, the warning should apply to the Italians of our days; for in Italy quite a stagnation, I would even say a retrogression, has taken place in recent times.

The greatest performing vocal artists of our day are not Italians, but Americans, Germans, Englishmen, Frenchmen, Swedes, Spaniards, Hungarians, and Russians. The origin of this state of matters, again, has nothing to do with the climate. The relapse of the Italian vocalists is simply owing to their indolence, to the neglect of the true principles of the art of singing by the teachers, and, finally, to the excessive increase in the number of theatres. The latter circumstance has made it possible for even indifferent singers to find engagements, if their voices are but fair and fresh. If engagements were less easily obtained, the Italians would surely exert themselves, and endeavour to do more credit to their historical traditions. With six operas on their *repertoires*, such artists make the round all over their glorious country, and most of them are carried to their graves without ever raising the number even to ten. It is in the south of Italy chiefly that we meet these "*artisti di canto*."

Where too favourable a climate prevails, where nature is too lavish, we observe a weakening of the conditions of superior culture, and, consequently, of

the progress of all the classes of a people. Without meaning to enter into any scientific inquiries, I may adduce the following in proof of my assertion: Singers endowed by nature with a sonorous voice of large compass are in general the most mediocre artists. On the other hand, we find a legion of singers whom nature has, with respect to power and compass of voice, treated but like a step-mother, and who even in a simple phrase make us recognise them as accomplished artists. Earnestness, application, and intellectual study are comparatively rare among singers who possess marked advantages with regard to voice. There are, of course, bright exceptions. Thus we meet daily with the fact, that superior culture produces superior artists even in less favoured climates.

Birmingham, Manchester, and London have certainly no fine climate, the atmosphere being damp and chilling, and filled with fog and smoke, all very injurious to the voice. And yet we hear in these cities bands of singers formed of the people, and performing without payment, whose choruses are in no respect inferior to those one hears in Italy by highly paid operatic companies.

As another striking instance of carelessness induced by nature's bounty, and of the ability of civilisation to cope with adverse conditions, I may point to the matter of our air-supply. In the country, where buildings are few, and stand at considerable distances from each other, and where no factories spoil the fresh air, we find in the dwellings of the people, for the most part, a close and heavy atmosphere, charged with carbonic acid. Country-folks have fresh, wholesome air in abundance, but unwholesome ideas as to

its utilisation; and one does hardly meet with worse conditions in this respect than those met with in the rooms of the peasantry. The better educated inhabitants of cities, on the other hand, more exposed to dust and smoke, and compelled to live in crowded localities, know how to ventilate their dwellings, and to keep them so that, in respect to air at least, they may not long for the sweetness of rural life.

The times when the Italian vocalist devoted from six to eight years to an unremitting thorough study of his art before he came forward in public are past. In no small degree this relapse has been occasioned by the comparatively limited means to which the Church has of late been reduced, the clergy in consequence now doing almost nothing in support of singing in churches.

I have dwelt at such length on the decline of the vocal art in Italy in order to show that even the Italians, who used to hold almost a monopoly as singers, must cease, in spite of their language, their climate, and in spite of the enjoyment of the bounties of their southern country, to play the first part in the musical world so soon as they do no longer bestow on the voice that fostering care, and devote to it those earnest studies, without which it becomes unfit for the ends of art. We hear in that delightful climate rough and hoarse voices; and this is due to false methods of teaching, to heedlessness, and to a frivolous and unnatural use of the vocal organs.

The Emperor Julian, when hearing on the banks of the Rhine the Germans sing their national tunes, could only compare them to the screaming of birds of prey. Carousing all the night through, shouting

and roaring out their delight in song till morning called them to renewed fighting, could certainly not improve the voices of those brave barbarians. And when it is recorded that the Roman soldiers were struck with dismay, broke, and fled, when they heard the voices of the Teutons raising their wild battle-cry, we may, indeed, give credence to that statement. Things have changed though; and in these days of ours Germans thoroughly trained in the vocal art enchant not Roman soldiers only, but even Roman ladies and artists, by their performances in the Apollo of Rome.

Recently the far north has sent us two vocal artists of mark, Jenny Lind and Christina Nilsson, both taught at Stockholm. Of Jenny Lind, Mendelssohn says: "I have never in my life met with so refined, genuine, and true an artist's mind as that of Jenny Lind. Nowhere have I found such a combination of natural endowment, of study, and of heartfelt sympathetic disposition." As to Christina Nilsson, every one should hear her.

As to Russia, the Roman composer, B. Galuppi, after having for the first time attended a concert of sacred music given by the Russians in St Petersburg, rapturously exclaimed, "So grand a chorus I never heard in all Italy!" In an equally eulogising way Gounod quite recently commented on the choral singing at Birmingham, that city in which smoke and mist contend for the mastery.

Here, again, we have the proof of the power of civilisation. By the establishment of first-class schools of music, by calling in great artists, and by making proper provision for regular good concerts of classical

music at moderate terms, love for the art is more and more awakened in the public, their judgment is made more accurate, and their taste more refined. It is all-important, therefore, that only that which is good, refined, and beautiful in art should be offered to a people ambitious of holding a prominent position in the civilised world; and away, therefore, with all mistuned barrel-organs, with all sentimental out-of-tune performers on the cornet-à-piston, and away with all street bands that rend your tympanum, for they are murderers of art, demoralising the people, and corrupting their taste. All city authorities should stop the trade of these vagabonds; nor should respectable people support their vicious proceedings by gifts: then these drones would eventually be compelled to take to decent work.

That a town should hear little music or none at all is a misfortune; but to be compelled to listen too much to bad music is a real calamity.

Let proper schools for the art be established even in the smallest borough; let sacred music, which raises and refines the heart, be in all churches carefully cultivated; and let every fair voice be cautiously looked after, and one will everywhere, even in the most cheerless climate, have great singers with noble voices.

By foresight and proper protection we can create an artificial climate, and not only reduce the noxious influences of the natural one, but almost entirely counteract them. Civilised man has succeeded in creating a fair climate for house and room. In the midst of formidable cold he can with wood and coal prepare for himself the warm climate of the south;

and so he can also in tropical regions procure a comfortable moist and cool atmosphere by the evaporation of water, and in the same manner enjoy a dry shelter in the rainy season. Badly constructed houses certainly make the mild Italian winter harder to bear than the icy cold of the Russian one.

By dressing properly, also, man has succeeded in guarding himself against a number of climatic agencies, more especially against cold and wet. Von Pettenkofer says: "In our clothes we carry about with us the air of the south in the open air, and that even in high northern latitudes. If one take the temperature of the air retained between the surface of the body and our clothes, it will be found to average between 24° to 30° Cent. Thus in our clothes our condition is the same as if we were living in *deshabille* in a calm open air of 24° to 30° Cent."

Warm dress is an equivalent for food. For as clothing has for its object the preservation of the heat produced in the body by the combustion of the food, one may say that in respect of heat our body has a direct income derived from the food we take; while by clothing it guards itself against unnecessary expense. This illustrates the importance of economising warmth. In selecting the materials for our dress, we have in the first place to consider their *efficiency*. Those textures which are the worst conductors of heat will, according to our physiologists, best keep us warm. Such are hare-skin, down, beaver, raw silk, taffeta, lambswool, cotton, linen, and corded silk.

In the second place, we have to take into account the *power of radiation*. Rough textures more readily

radiate heat than smooth ones. Colour, however, makes no difference in this respect.

The third consideration is the *behaviour of the material* when exposed to the rays of the sun. Dark stuffs absorb more heat from the sun than light ones. We know by experience that in summer the sun makes us warmest when we wear dark clothes, but that we feel coolest in white dress.

Fourthly, it is of great importance to what degree stuffs are *hygroscopical*,—whether they are capable of absorbing much moisture from the skin, and at the same time whether they give out the moisture by gradual evaporation, or the reverse.

Experiments made by several physiologists show that wool absorbs of moisture twice the amount absorbed by linen of equal weight. Wool worn next to the skin, therefore, does not, like linen, produce damp and chill by rapid evaporation, and thus more readily prevents catching cold. Besides, the process of drying is much more equable in wool than in linen. For this reason, wool is an indispensable article for a climate like that of Scotland.

It is of great importance, also, to limit as much as possible the use of air-proof stuffs. One may therefore wear india-rubber waterproofs only during the rain in cold weather, or in a strong wind, but must avoid them when the air is damp, and at the same time warm, and in calm weather. Von Pettenkofer here again remarks: "People generally look upon their clothes as contrivances for keeping the air off the body. This is altogether a wrong notion: we cannot wear with impunity, nor do we feel comfortable in, clothes which do not allow a constant ventilation of

the surface of the body. Nay, if we test the different materials used for dressing, as to their capability of permitting the passage of air through their pores, we find, to our astonishment, that precisely those textures which, according to experience, clothe us most warmly, allow a much larger amount of air to pass through than those of which we say that they keep us cool."

Flannel allows the passage of one hundred times more air than tawed or white leather. Yet, as is well known, flannel keeps much warmer than leather. "Our clothes," says the same author, "are weapons with which civilised man fights the battle against the air, as far as it is hostile to him; with which he makes his element, the atmosphere, subject to himself."

By dressing in a practical and seasonable way, and by hardening ourselves, we can prevent dangerous illness arising from colds, and preserve our voices even in unfavourable climates. Thus, colds in the head, catarrhs, and inflammations of the windpipe and the bronchial tubes, are sure to hurt the voice, especially if they are of frequent recurrence, as is the case more commonly in northern latitudes, with their sudden changes of temperature, their fogs, their damp and chilling air, and the prevalence of northerly and easterly winds. These conditions are apt to make the voice raw and dry, and a climate of this kind is certainly no bed of roses for vocalists; yet even in Italy, one does not enjoy immunity from colds, as one may often, and especially during the Carnival, notice from the play-bills, when, "owing to indisposition," either the performances of operas are postponed, or a substitute must be found for the part of this or that artist. Notwithstanding the care observed by the old Italian

church-singers, they were often enough troubled with colds in their noses, as we learn from that famous hymn to St John the Baptist, which runs thus :—

"Ut quæant laxis
Resonare fibris
Mira gestorum
Famuli tuorum
Solve polluti
Labii reatum
Sancte Joannes !"

("Oh, St John, that the students may be able to sing with relaxed cords the wonders of thy deeds, take away from them the reproach of unclean lips.")

It is from this very pious hymn that Guido of Arrezzo took the first syllable of each line—*ut, re, mi, fa, sol, la*—and bequeathed this so-called solmisation to the world of song, throughout which, up to this very day, it is in use in solfeggio-singing. Great Goethe himself was troubled by colds and coughs in Italy, and this in the midst of summer. He writes in August 1787: "In the evenings especially, one must take care not to catch cold."

On the other hand, I may state my own experience of the climate of "modern Athens." I have been living in Edinburgh these three years, and have had a cold only once; while in Milan, Florence, and Rome I used to suffer from it every spring. The reason of my having been exempt from colds here is, that I at once adopted the best methods for hardening the body —daily cold baths, vigorous friction of the skin, sleeping with open window, and a daily walk both in fine and in bad weather. Thus I have remained on familiar terms with the air, and have made myself

impervious to external influences—even to the east wind.

In Italy nobody thinks of hardening the body: people are thoughtless, take life easy, and indulge themselves; they think only how to enjoy the hour, and the consequence is effeminacy. Self-indulgence, however, in respect to one's constitution, is the mother of colds, catarrhs, and many other rheumatic affections. People who shun the air and the cold blast are continually sneezing and coughing. Scottish Highlanders and Tyrolese peasants hardly know these troubles.

Most colds, and precisely those most injurious to the larynx, are caused in a cold, damp, and changeable climate by wearing thin and tightly-fitting shoes; therefore, if you want to save your voice, keep your feet warm. Plutarch, who, by a ripe and happy old age, proved the truth of his precepts, recommended keeping "the head cool and the feet warm." The Italians say in the same way, "*I piedi asciutti la bocca umida*" ("Keep the feet dry and moisten the mouth.") "Cold and damp feet injuriously affect the organ of hearing," says Dr Hagen. Foot-exercises are to be recommended to every vocalist, and especially to ladies who suffer from cold feet. A radical remedy for cold feet may be learned from Dr Schreber's 'Chamber Gymnastics,' diagram 31, p. 69. They are chiefly stretching and bending the feet, repeated twenty to forty times with each. These exercises may even be performed while sitting. A vigorous, and as complete as possible, raising and lowering of the tip of the foot, the limb being kept in an independent position, not drawn in, but somewhat extended forward. The movement is executed entirely in the joint of

the ankle. Vocalists ought to treat the skin of their feet as carefully as that of their hands and of the face.

Besides attending to these conditions of his general health, the vocalist must in particular render the mucous membranes of the vocal organs insensible to cold and damp air and east winds, by daily gargling with cold water, to the amount of from five to six tumblers. This treatment is also a good prophylactic against swelling of the tonsils or inflammation of the throat.

As to the north and east winds, these discourteous and uninvited visitors, I must still mention that during the prevalence of these winds the voice sounds rather feeble and languid, and that this is the case especially in less robust individuals. I would advise those who have to live in a country of which the east winds have made themselves denizens, not to shut themselves up and cower at their fireside; but, on the contrary, to harden and gradually accustom themselves to the east winds, and when out to keep the neck bare and the mouth shut, so as to breathe only through the nostrils.

Upon winged songsters, too, the winds exercise an influence. Their immigration takes place very naturally in spring, when a change occurs in the weather, and when balmy south and west winds blow. It is these favourable winds that stimulate the bird, and induce it to set out on its northward passage. The cold weather again, setting in with the predominance of northerly and easterly winds, causes the bird in the fall of the year to leave his northern home, and to hasten towards the genial south. We see the

migratory impulse awakened in them as soon as the climate again becomes more suitable.

There are unwinged singers, too, who feel the balmy breath of the south and the west to be grateful. But the remarkable thing is, that they go northward rather than to the south. Their migratory impulse does not depend on high winds, but on high fees; and they seek St Petersburg, seeing that there the highest salaries are paid.

There is no very marked difference in the character of voice between the nations of the east and those of the west; and though places under the same degree of latitude have not throughout the same climate, we yet find that the annual average temperature on the east coast of America fairly corresponds with that of the western coast-lands of Europe.

East coast of America :—

New York,	40° 43′ lat.,	annual average temperature,	9.1°
Philadelphia,	39° 57′ „	„ „	9.0°
Washington,	38° 53′ „	„ „	10.2°

West coast of Europe :—

Lisbon,	38° 52′ lat.,	annual average temperature,	13.1°
Naples,	40° 51′ „	„ „	12.9°

Comparing the above data, we will find it natural that the difference in the vocal character between North Americans and Europeans living in a similar latitude is scarcely an appreciable one, which accords with the fact that civilisation has in the cities mentioned advanced pretty much to an equal degree. Yet, whether vocalists come from the south or the north, from the east or the west,—a correct treatment of the voice, according to the rules of the art,

can almost entirely remove whatever difference there may be in the native vocal character. Madame Jenny Lind and Miss Christina Nilsson from Stockholm; Mdlle. Sophie dall' Occa, afterwards Mdme. Schoberlechner, from St Petersburg; Giulia Grisi, born in Milan; Mdme. Albani, now Mrs Gye, a native of North America; Adelina Patti, the most eminent representative of the *bel canto*, born in Madrid; Paulina Lucca, Agnese Schebest, Caroline Unger, all born in Vienna, and the last mentioned a pupil of Ronconi in Milan; Mrs Patey, Miss Davies, Miss Charlotte Elliot, justly so admired in their native country; Mdlle. Bianca Bianchi (formerly Fraülein Schwarz), from Heidelberg; Caroline Carvalho, born in Paris,—all these great vocalists excelled in, or are still most distinguished by, the beautiful tone of their voices; and no one could discover from their voices, as such, that they belong to different countries. It is indeed only in the pronunciation of the *recitativo* that in a few of the mentioned artists the foreign birth slightly betrays itself.

All human beings, in whatever clime they dwell, are endowed with voices. And although no one voice sounds like another, and although innumerable minor differences occur in the structure of the vocal organs—all larynges are of the same nature, all have the same number of vocal chords, and of muscles and cartilages; and the uniformly equal formation of all larynges might, I believe, afford a sufficient ground for tracing all the human races back to one common origin. Alexander von Humboldt asserts the unity of the human race, and contends against all discouraging theories dividing humanity into superior and inferior

races. He says: "There are races more apt to receive education than others; there are some that have been better educated and refined by intellectual culture; but there are no races more noble by nature than others. They are all equally fit and all destined for liberty; and we have to look upon humanity, without any regard to religion, nationality, and colour, as one closely related society, and as a great total existing in order to attain to one common end—to the free development of its inborn intellectual energies." I have examined with the laryngoscope the larynges of Hindoos, Zulus, Chinese, Japanese, and Negroes, and have found them to be entirely equal to that of the European in form and structure. I do not think the greatest anatomist would be able to judge from the vocal organs of an individual as to the race to which he belongs, however great the difference of the languages, in the speaking of which the larynx may be used. Every person possesses in his vocal organs a marvellous instrument; but all depends on the manner in which that instrument is played upon. Proper education and true culture must do the best with each.

LECTURE SEVENTH

HOW CAN THE MUSICAL EDUCATION OF THE MIDDLE CLASSES BE IMPROVED?

DELIVERED BEFORE THE

SOCIAL SCIENCE CONGRESS, EDINBURGH

OCTOBER 12, 1880

"Dalla prima lezione sino all' ultima si ricordi il maestro d' esser debitore di tutto quello, che non insegnò, e degli errori, che non avrà coretti."—PIERFRANCESCO TOSI.

"Un bravo e valente maestro non può solo attenersi ad una maniera d' istruire i suoi allievi; ma che per formare de' cantori perfetti, deve conoscere a fondo le diverse maniere come saper prenderli, e con giudizio poi applicarle ai casi pratici secondo il bisogno."—GIAMBATTISTA MANCINI.

ON MUSICAL CULTURE.

THE question before this meeting is, in so far, a peculiar one, as it would seem to confine the inquiry to the musical education of the middle classes only, and as it almost looks as if it might be inferred that the musical education of the upper classes could be conducted on different principles, or that musical culture in these classes has reached that state of perfection which precludes further discussion. Without entering upon the reasons that may have induced the drawing of a distinction here, I would venture to remark, that whatever promotes musical culture in any one class, must inevitably promote it in the other classes of society, and that any means of improvement proposed must be applied to the upper as well as to the middle classes; and therefore I have in my paper discussed the question apart from the distinction so made, and mainly with a view to the general advancement of musical education.

In offering a few remarks on the improvement of musical education, I trust it may be thought but natural that I should view the subject mainly in its relation to the art of singing; and it will be conceded

that I am entitled to do so, seeing that *song is the basis of all music*, and that in the human voice we have before us the most perfect, and, in fact, the most wonderful of all instruments. I say the most wonderful, because all instruments, be they string, wood, brass, or keyed instruments, are but imitations of the human voice, and even inferior to it, as they are mere products of human ingenuity, whilst in the voice we possess the divine gift; so that Schubart aptly says, "Song is seated on the throne as king, and all the instruments bow before it as its vassals." I am sorry I have to add that, in recent times, these vassals have thrown off their allegiance. They have risen in rebellion, and want no king to reign over them.

If we look to the foundation of this phenomenon, we find it but natural that things should have gone thus. As long as the king was of noble mind and cherished a beneficent sway, the vassals obeyed and honoured him; but as the king grew of depraved tastes, and neglectful of his high office, the vassals grew disloyal, and followed their own evil courses. With the degeneracy of true song, instrumentation grew more and more overpowering, so that ultimately refined singing has become almost an impossibility. The more noble forms of *legato*, *portamento*, *messa di voce*, were at a discount, and what was left, the mere brute force, could not exercise any lasting power in the domain of art. The first injury to musical taste is done by the teaching of singing in elementary schools, and it is grievously repeated by the management of so-called choral unions, or vocal associations.

The teachers and conductors are in most cases

organists; but for the greater part they are musicians of a very one-sided and superficial training.

I have the highest regard for the organ, and for the musical knowledge and skill of a good organist; but the human voice is an instrument that requires a very different treatment, and one that must be specially learned. The teaching of singing in the elementary schools ought to be raised to a higher stage, by which the taste for music and singing would be generally improved, and, besides, a sound foundation for future cultivation be given to individuals showing naturally good gifts.

At present the hideous screaming encouraged in elementary classes is positively ruinous to the musical, and thus to the most delicate, instincts of the young. But lately it has been made evident what artistic achievements may be obtained from children by careful cultivation and intelligent treatment. I refer to the performances of "H.M.S. Pinafore" by a juvenile company. They so greatly charmed the public that they secured full houses, and the delight with which they filled every hearer was the work of some one who knew how to teach children. Should we then speak of cultivation of singing when teachers drill all their pupils for the same song on the same key? Perchance the ear may gain by it, but the formation and culture of the voice is out of the question. The chief requisite to successful teaching is the individual treatment of the voices from the very beginning. The children must sing according to the register of their voices, and their songs ought not to exceed, in the beginning of their education, the compass of one octave.

In the following, I touch on a few more technical points with a view to induce comparison as to what ought to be done with what is done, in husbanding the gift of song among a people.

Even in early childhood parents ought to guard against their children hearing impure sounds or bad music. They ought never to hear playing on ill-tuned pianos, or to handle toy instruments which, by abuse, have lost some of their notes or are out of tune. Let nobody believe that I am here raising too high demands. If the benefit of observing this rule be not perceived at once in the child, it will surely show in later years. I would not have children kept to the learning of any music, especially to singing, before the age of eight. Exercises or songs, containing sustained or *portamento* notes, ought to be practised later on and in great moderation. When their voices break, boys as well as girls must have perfect rest; and only when the voice is settled again exercises may be resumed with great caution. If, by intelligent training, half a tone is gained in compass, one must not go higher at once, but must allow the note thus won to get naturalised, as it were.

It is to be desired that, in schools, each pupil may first be instructed individually in the formation of voice. Later on, four pupils should receive instruction together; even six would go profitably together, as they would relieve each other, so that the teacher may not be tempted to make one pupil sing too long at a time. The larger number, besides, is conducive to emulation. Where, to an individual pupil, a whole hour can be devoted, pauses must be made between the singing, which ought to be filled up with the theory of

music, and, later on, with the expressive recitation of the texts and with the master's rendering of the songs. For in no art does the living example promote more rapid progress than in the art of singing. The pupils having well laid hold of the master's style, they must be made to repeat the song individually, when deficiencies that may occur are brought under their special notice, to the advantage also of those who have to sing in their turn after them.

Pupils must sing small exercises ranging within the fifth, or perhaps the octave, first individually; and only when these are true and correctly executed they may be sung in unison. With children between nine and twelve, I should not like to go beyond a compass of nine or ten tones. To make them start the notes truly, an excellent exercise is to make one pupil sing the tonic; the next, the third; the next, the fifth; and another the octave—thus, C, E, G, C, &c. The chord thus obtained may be sustained without a *crescendo*, for pure intonation merely, and *mezza forte;* afterwards *crescendo*. Farther on the chord may be varied, changing the third to the fourth, and the fifth to the sixth, followed by the dominant with the seventh—to be finished with the original trichord. These and similar exercises ought to be practised also without the piano, which renders the ear more acute, and compels the pupils to sing more truly. Without careful studies in the formation of the voice by the individual pupils preceding, the singing with unison is absolutely objectionable.

As to singing in choral unions, &c., it is simply lamentable. Everybody who has but a little bit of a voice is only too gladly received; and if it be a strong

voice, though without a trace of musical culture, so much the better! Then, generally, the singers with feeble voices strive to cope with those with strong voices. And what is the result of such efforts? Screaming and shouting, but no singing! That even giant voices can be destroyed is shown by Homer's Stentor, who ruined his voice, which was capable of overshouting fifty men, when he was foolish enough to engage in a shouting-match with Mercury. How should Pygmies stand it? The conductor, instead of being fastidious in his choice, thinks the more the better; and he entirely overlooks the fact that a dozen good singers produce a far higher effect than fifty bad ones. In the palmy days of genuine art there were certainly fewer vocal associations. Instead of these, choral singing was cultivated in the churches, and each individual had to make thorough studies before he was allowed to join the choir. However common choral singing nowadays is, when almost every town has a number of associations, there is certainly no increase in the number of good singers. The members of such associations not having made proper studies, there is generally incorrect breathing, little or no modulation, false intonation, and I must repeat it, more screaming than singing; and that is the cause why these unions use up and ruin, rather than develop and improve, voices. I am firmly persuaded that singers can be trained only by superior *artistes;* and such singers acting as teachers must be well versed both in the æsthetic and intellectual branches of knowledge, in philosophy and history; in one word, they must possess a universal culture.

We premise such universal education with every one who lays claim to the honourable name and title and office of a teacher; and if we demand such culture with any teacher of history, mathematics, physics, and of language, why not with the teacher of music and singing?

The history of music shows that at all times musicians were trained by musicians, and singers by singers. I would recommend as teachers particularly old ōpera and concert singers of established reputation, who are in possession of experience and skill, though only possessed of a remnant of voice; and such (if they have, besides, the requisite general culture) are certain to exercise a beneficial influence.

An intelligent critic observes, that an *artiste* must learn how to sing so that he may be able to sing even when his voice is gone; and this dictum has been applied to the tenor Rôger, far famed for his eminent artistic accomplishments, who in old age, and with the very residue of his formerly brilliant voice, produced effects such as a young rival of his could not effect with all the power and sonorousness of his voice, because he was deficient in artistic education.

For the proper classification of voices, the conductor requires to have made comprehensive studies. How often are not *mezzo* sopranos allowed to sing high soprano parts, or baritone tenor parts; or, if they have any depth, the deepest bass parts! This appears to me as if one wanted to play clarionet on the bombardon, or double bass on the violin. Such attempts do little harm to the instruments, but they are the ruin of good voices.

Art, indeed, has its root in the genius of a nation

and of an age; but it is the artist in whom art is incarnate: it is the teacher of the art by whom it must be nurtured, and by whom its seed must be preserved and spread abroad.

What, then, may we expect of the generality of artists and teachers? Schiller says: "At all times when art declines, the fault lies with the artists." The bad taste of the public is the result of mediocre, bad, and inartistic productions and performances. And so it is to a great extent at present, both in the opera and in concerts, that physical power is admired rather than refined artistic performance.

And for this fact I blame both the executants and the so-styled professors of the art! And what is to be said of these professors? A person unfit for any other calling, if only able to maltreat the piano, goes for three months to Italy, takes singing-lessons there, and after this protracted period of study, he returns as Signor "So-and-so," and gives instruction according to the Italian school. A governess who knows several languages, and how to paint, and play the piano, is not yet accomplished enough; she must also be able to teach the art of singing. Accordingly she takes a few dozen singing-lessons, and being then perfect, she gives instruction also in singing.

Satisfactory results are here out of the question, even though the lessons with such teachers be continued for years. They do more harm than good. But such are the greater number of teachers.

What accounts for their existence and outward success is, in the first place, the absence of organisation in the profession under some leading institution, to which I shall refer immediately; and in the second

place, as matters now stand, the popular notion prevailing with many people with regard to the teaching of singing, no less than to that of almost every other branch of education, is, that for the initiation into the art, or, vulgarly speaking, for the beginning, they ought not to choose the best and most thorough master, but that for some time an inferior teacher would be more advisable. They think that teachers of less pretensions will be found less trying for the pupil's comprehension, and more painstaking in the more elementary work.

It is the willingness of the teacher of high qualifications that is doubted. Here Quintilian says: "I do not count him who is not willing to labour as a teacher at all;" and such willingness being premised, the ability to produce great results is certain to be found with the first-class teacher. In the first place, because it must be assumed that he who excels others in skill must have more accurately conceived the way by which the art is attained; and farther, because in teaching, what is of paramount importance is the method, which he who possesses the greatest culture possesses in the most perfect degree; and lastly, because no one can be distinguished in the higher paths if he has not mastered the humbler accesses to art. Or else one would have to assume that Phidias was able, indeed, to form the figure of Jupiter, but that the ornamental accessories—the pedestal, &c.—would be better executed by some one else; or that a great orator should not know how to carry on an ordinary conversation; or that the best physicians could only treat severe cases, but were unfit for minor ones.

The first condition in delivery is clearness and dis-

tinctness. The more feeble-minded a person is, the more far-fetched and pompous is his expression, just as little people stand on tiptoe. Abstruseness and obscurity of expression are characteristic of want of power, and therefore have little effect.

The true teacher of singing must make a special study of the formation of the voice the task of his life, and he must not rest satisfied with what he picks up during a brief course of instruction, or what he may gather from books. He must devote to it constant thought and research, and must make his studies at first with bad voices: here must he make his observations, and afterwards turn them to account in the treatment of good voices.

It is precisely this wherein the ordinary teacher fails, and therefore for the formation of the voice the best teacher ought to be engaged at the very beginning; for if the pupil has acquired a faulty mode of conducting the voice, of treating the breath, and a wrong position of the mouth, the greatest trouble is entailed upon the conscientious master, into whose hands he may pass afterwards, to correct these faults.

For this reason, according to Quintilian, Timotheus, the celebrated flute-player, used to charge double fees to those who had studied under another master, and his example has been followed by a lately deceased Italian singing-master, Trivulsi.

The few good singing-masters have so many professional engagements, that they are not inclined to give instruction except at very high terms; and few people (least of all those who want to make a living as teachers by their accomplishments) are in the position to meet these terms. Hence the course of studies

is limited as much as possible, and success in the profession is sought by illusive means.

As to the *artistes* themselves, there is, owing to the dearth of good *artistes*, no lack of engagements for the young singer gifted with a powerful voice: yet the most modern so-called dramatic style, and the high keys, in which the parts are written, cause a speedy destruction of the voice; it becomes tremulous and untrue, and breaks down after a year or two. Once gone, even the clime of Naples cannot restore it, or, as my *maëstro*, Ronconi, would say, "*Se un cantante perde la voce neppure il papa puo ridargliela.*" Not even the Pope. Every fruit requires a given time for its maturity, and Milo the athlete carried the calf before he was able to carry the bull.

I believe that another cause of the decline of the art is to be found in the fact that music has become so much a matter of fashion. It is no longer cultivated as an art, but rather as a pastime. There is certainly an astonishing amount of music made in these days of ours. Everywhere one hears people sing and play the piano. Only one may not ask how? It is true enough that all occupation with art—even the mere being in contact with it—exercises a certain moral influence upon the masses; but it is as certain a fact that art itself can only lose by superficial and unrefined treatment.

I now turn to the question where the remedy against the deterioration of art is to be found. I, in the first place, encounter the principle of free trade, or the commercial principle in full action.

In a free country every one may carry on a trade all the same, whether he understand it or not. Any one

may teach music or singing, whether he be qualified for it or not. Now I hold that if the State grants such liberty in matters of art, it has also the duty to make provision for the improvement and prosperity of that great moral agent.

It will be universally admitted, that of the civilising and refining agents at work among a people, there is none so potent, because none equally subtle and immediately appreciated, as music, and especially the art of song.

It is surely not necessary to quote authorities in support of this statement. Still it is significant to find Polybius priding himself on his countrymen, the Arcadians, having softened by music the natural roughness of their character, which was a consequence of the mountainous nature of their country and its clime.

Still more so are the words of St Augustine: "One feels that song softens the heart and makes pious emotions rise in it; words when sung, speech when kindled by music, lay hold of the mind more powerfully than oratory; and therefore it was that the ancient Eastern custom to sing hymns and anthems in churches, in order to tune the hearts to devotion, had been introduced into the Western Church also at the time of Ambrose." Calderon says, "Music is the antidote against all ills" (*la harmonia es antidoto a los males*). And lastly, it is perhaps the greatest recommendation, when the Chinese say that the knowledge of music and of the laws of harmony is most intimately bound up with the art of governing the State, and that he who understands music well is fit also to govern well.

It is therefore the duty of the State to enlist this agency in its service, and to make provision for the appointment of superior *artistes* as professors, who know how to cultivate the voice, so that those favoured by nature may contribute to the culture of the entire nation by their public activity.

The State failing to meet this demand, I can only see a remedy in the exercise of the same freedom by way of effectual combination against the desultory and dissipating tendencies of unlimited professional licence. I hold that every large and opulent city in the land ought to have its own *conservatoire* or academy of music, and should take care to place at the head of its various branches none but tried men of real scientific culture, who have given unquestionable proof of their ability as masters, and who owe their position to merit and not to patronage.

For it is to merit that the crown is due. With regard to the art of singing, such institutions would afford to students aspiring to the office of teachers the opportunity greatly to be desired, to which I have alluded above, for making their observations and studies, with voices of all kinds, and particularly with those of little promise. Whilst there is little risk of doing great injury to a bad voice, the incipient teacher would have the chance of proving his intelligence and artistic mode of treatment by the improvement he would effect with feeble and deficient voices.

It would be the privilege of such an art institution to give the highest training gratuitously, or at reduced terms, to young students of decided talent, if they do not possess the necessary means. If conducted on such principles, and combining strictness with liberality,

such academies would in a few years be able to send forth really competent masters to whom the talent and taste of the rising generation might safely be intrusted. The instructions supplied by such institutions would not only be more profound, but also more universal, than that obtainable even by the best private teaching; and their influence would soon be felt, not only in the general improvement of all public performances, but also—*e.g.*, in the case of Edinburgh—in increasing the fame of the city as the centre of scientific and artistic education. Nor would the attractions thus held out to students from abroad, and strangers, be without material advantages for the prosperity of the place.

It is indeed most remarkable that Edinburgh, this magnificent city, not unfamiliar to my own country as the Athens of the North, should have till now been deficient in so important a feature of civilised life. Even now that the question of its introduction has been mooted by the newly founded Scottish Musical Society, I find it comparatively little understood, and by no means exciting all the interest it deserves. If I, as a foreigner and a comparative stranger, venture to advocate the cause before you, I do so, partly believing that I am not doing anything conflicting with the interests or even with the intentions of Edinburgh society, and partly because I speak in the service of art,—and may not the artist claim as his own country every country where art is loved and cherished?

Rousseau says: "If you wish to secure general support for an idea, or to introduce an object not yet received into favour, you must seek to interest the fair

sex in it." And how much more must this be the case when the point in question concerns education?

In the name of art, then, I venture to appeal to the *ladies of Scotland*—a land in which, owing to its high civilisation, the ladies exercise a great, and, I must add, a most beneficial power—and to ask of them to set their hearts upon this, and promote the good cause with all their wonted energy. Yes, ladies, aid this enterprise by word and by action, that this project may not remain a mere project, and that Edinburgh may not only, in its fine architecture and scientific institutions, but also in its high artistic tastes, rival the ancient Athens.

Remember that even with Homer, the Muses, the genii of song, were ladies, and it was they who by their chants inspired the poet, and put song into his heart. Although the times of the ancient gods are past, the ladies, as they were in rude times the nurses of gentler feeling, will ever remain the truest patronesses of art.

Scotland's songs, so deeply touching and so stirring, are the undoubted proof of the musical capacity of her people. And does not the taste for music, that fairest gift of Heaven, deserve in every way to be nursed and protected?

NOTE TO LECTURE SEVENTH.

My views respecting vocal associations and elementary schools have met with the approval of a large number of the leading English and Scottish journals; and with regard to the former, I cannot depart from those views as long as the conductors of such associations are not more particular in the selection of members. Everywhere nature has been lavish with good voices, and by far the greater number of men enjoy fair endowments for singing. Yet no one should be considered worthy of becoming a member of an artistic association who has not prepared himself for this distinction by preliminary studies, extending, if not over a number of years, as is necessary in the case of professional artists, yet at any rate over several months; and the conductors should be thoroughly qualified for the tuition of aspirants. Besides, the selection of members should be made by a committee, which may take into consideration not only the musical qualifications, but also the general character of the applicant.

An absolute want of ear for music and want of voice are of very rare occurrence. There are but very few individuals who suffer under such a misfortune; and the first object therefore is the testing, as to their musical qualifications, of those who desire to join any vocal association. The advantage to be gained by such a preliminary examination is the rousing of a certain artistic ambition in the association. The interest in vocal art will be increased, everybody will take a pride in joining an esteemed

company of singers, and will consider it a special honour to belong to the association. Of particular importance is the classification of voices, with a view to allowing each member to sing unconstrainedly, and without exertion, those notes which are really at his command. Only well-schooled associations can, by the performance of larger works, exercise a beneficial and refining influence on the taste of the public, while screaming, shouting, and singing out of tune can only ruin it. In choruses the basses, tenors, and sopranos ought rather to keep silent than to force high notes not actually at their disposal: thus the basses should abstain from e' or f', the tenors from a' or b', and the sopranos from a'' or b'', because forced notes, especially in the higher registers, always sound not true, and a few such false notes spoil the entire chorus. I here would refer to Helmholtz, who observes that, when the human voice is exerted to such a degree as to produce braying or brazen sounds, there are heard higher harmonics of the four-scored octave, lying so close to each other that they produce a most disagreeable effect. In the *forte* singing of powerful men's voices, one hears those upper harmonics accompanying the true note with a jangling sound, somewhat like that of a split hand-bell; and this jarring accompaniment is very distinctly audible when the voices in a chorus shout in a strained manner and at a high pitch, because each individual man's voice then produces such dissonant upper harmonics. Basses singing the high e' have seventh d^4, the octave e^4, the ninth f^4 sharp, and the tenth g^4 sharp as their upper harmonics. It will be readily understood what a sharp dissonance must be the

result of e^4 and f^4 sharp becoming powerfully audible along with a weaker d^4 and g^4 sharp. If, then, a number of voices sound these notes, with more or less slight differences of pitch, there will occur this peculiar jangle, which, after once having one's attention drawn to it, one will readily recognise wherever it occurs. I would recommend to conductors of choirs that all the copies of the music to be sung be supplied with breathing-marks, so that the singers may take breath simultaneously: by this the maintenance of true rhythm will be facilitated. If, on the other hand, some of the singers take breath at one time and others at another, the performance becomes unrhythmical. The music for the wind instruments ought also to be supplied with breathing-marks, lest the musical phrases should be distracted to unmeaningness. It is desirable that the conductor should, at every change of time and at every new start, gently mark one bar beforehand, in order to obtain the necessary precision. In this and other respects Ch. Gounod set a distinguished example when conducting his oratorio "Redemption" at the Birmingham festival. The *ensemble*, the *crescendos* and *decrescendos* of the choruses, were executed by the standard association with artistic perfection; and it was an equally great treat to listen to the choir, and to see the composer conduct his own work. Most commonly one hears with insufficiently trained choruses, and not less so with solo-singers, only the two extremes, the forte and the piano; while what lies between them, a beautiful *mezza voce*, is awanting, and along with it all truthfulness of expression. Even where the greatest effect is to be produced, choruses must never

shout; neither the choir nor the solo voices should seek for effect in any straining of their powers. Neither of them must disregard the principle of beauty of tone, seeing that the real potent element in music is tunefulness. A voice abused in screaming or shouting cannot but lose its resonance, its ring, and its lustre; and it is not only the capability for singing but also the beauty and force of speech that are marred by such overstraining of the voice. The sonorousness of a man's voice is indeed of the greatest importance to him during his entire life; and a fine and rich quality of voice manifested at public meetings or in Parliament often wins half the success of the speaker. Properly conducted instruction in singing has a great influence on the strength and refinement of the voice. A rough and harsh voice has something repulsive in it. I never have confidence in people with such voices.

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"Mr Albert B. Bach, who gave a Loewe Recital last week at Steinway Hall, is a Hungarian, and studied at the Vienna Conservatoire, where for two years he was a pupil of Marchesi. After that he went to Italy, and put himself under the direction of Lamperti, Varesi, and Ronconi, and, having finished his studies, he toured through Italy and Germany. Later on, he was engaged at La Scala (Milano) for two seasons—1877 and 1878—and in 1879 he sang at the Court Opera at Buda Pesth, where he was re-engaged in 1885. Among his favourite parts may be mentioned Mephisto in Gounod's 'Faust,' the King in Wagner's 'Lohengrin,' the Cardinal in Halévy's 'La Juive,' and Mozart's 'Don Giovanni.' Since 1886, however, Mr Bach has only sung at concerts and oratorios. Much of the time he can spare from teaching is devoted to editing editions of songs, especially Schubert and Loewe, and to writing books on his art, among which may be mentioned 'The Principles of Singing,' 'On Musical Education and Vocal Culture,' and 'The Art Ballad: Loewe and Schubert.' Mr Bach, who for several years has been a successful professor of singing at Edinburgh, where he now lives, has had the honour of singing before the Queen at Balmoral; and since 1892 he has been a naturalised Englishman."

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